ANCIENT AND NEW

Note on the relationship between artificial intelligence and human intelligence

I. Introduction

1. [*Ancient and new*] With ancient and new wisdom (cf. *Mt* 13:52) we are called to consider the daily challenges and opportunities posed by scientific and technological knowledge, in particular those of the recent development of artificial intelligence (AI). Christian tradition considers the gift of intelligence to be an essential aspect of the creation of human beings "in the image of God" (*Gene* 1,27). Starting from an integral vision of the person and from the appreciation of the call to "cultivate" and "guard" the earth (cf. *Gene* 2:15), the Church emphasizes that this gift should find its expression through a responsible use of rationality and technical capacity in the service of the created world.

2. The Church promotes progress in science, technology, the arts and every human endeavor, seeing them as part of the "collaboration of man and woman with God in the perfection of visible creation."[1] . As Sirach states, God "gives knowledge to humans, so that they may glorify him for his wonders" (*Sir* 38.6). Human abilities and creativity come from Him and, if used rightly, they bring glory to Him as a reflection of His wisdom and goodness. Therefore, when we ask ourselves what it means to "be human," we cannot exclude also considering our scientific and technological capabilities.

3. It is within this perspective that the present *Note* addresses the anthropological and ethical questions raised by AI, questions that are particularly relevant since one of the objectives of this technology is to *imitate the human intelligence that designed it*. For example, unlike many other human creations, AI can be trained on productions of human ingenuity and therefore *generate new "artifacts"* at a level of speed and skill that often equals or exceeds human capabilities, such as generating text or images that are indistinguishable from human compositions, thus raising concerns about their potential influence on the growing crisis of truth in public debate. Furthermore, because such technology is designed to learn and make certain decisions autonomously, adapting to new situations and providing solutions not foreseen by its programmers, substantial problems of ethical responsibility and security arise, with broader repercussions for the whole of society. This new situation leads humanity to question its identity and its role in the world.

4. There is, however, broad consensus that AI marks a significant new phase in humanity's relationship with technology, placing itself at the heart of what Pope Francis has described as a "change of era."[2] . Its influence is felt globally in a wide range of sectors, including personal relationships, education, work, art, healthcare, law, war and international relations. As AI continues to advance rapidly towards ever greater heights, it is critically important to consider its anthropological and ethical implications. This means not only mitigating risks and preventing harm, but also ensuring that its applications are directed towards promoting human progress and the common good.

5. To contribute positively to a discernment on AI, in response to Pope Francis' invitation to a renewed "wisdom of the heart"[3] , the Church offers its experience through the reflections of this *Note* which focus on the anthropological and ethical sphere. Engaged in an active role within the general debate on these themes, it exhorts all those who have the charge of transmitting the faith (parents, teachers, pastors and bishops) to dedicate themselves with care and attention to this urgent question. Although addressed especially to them, the present document is intended to be accessible to a wider public, that is, to those who share the need for scientific and technological development that is at the service of the person and the common good.[4] .

6. To this end, the aim is first and foremost to distinguish the concept of "intelligence" in relation to AI and to human beings. First, the Christian perspective on human intelligence is considered, offering a general framework for reflection based on the philosophical and theological tradition of the Church. Next, some lines of action are proposed, with the aim of ensuring that the development and use of AI respect human dignity and promote the integral development of the person and of society.

II. What is Artificial Intelligence?

7. The concept of intelligence in AI has evolved over time, encompassing a multitude of ideas from various disciplines. Although it has roots dating back several centuries, an important moment in this development occurred in 1956, when the American computer scientist John McCarthy organized a summer conference at Dartmouth University to address the problem of "Artificial Intelligence", defined as "making a machine capable of displaying behavior that would be considered intelligent if a human being were producing it."[5] The congress launched a research program aimed at using machines to perform tasks typically associated with human intellect and intelligent behavior.

8. Since then, research in this sector has progressed rapidly, leading to the development of complex systems capable of carrying out very sophisticated tasks.[6] These so-called "weak AI" systems (*narrow AI*) are generally designed to perform limited and specific tasks, such as translating from one language to another, predicting the evolution of a storm, classifying images, offering answers to questions, or generating images at the user's request. Although there are still a variety of definitions of "intelligence" in the field of AI studies, most contemporary systems, particularly those that use machine learning, are based on

statistical inferences rather than logical deductions. By analyzing large data sets with the goal of identifying patterns, AI can "predict"[7] effects and propose new avenues of research, thereby imitating certain cognitive processes typical of human problem-solving ability. This achievement has been made possible by advances in computer technology (such as neural networks, unsupervised machine learning, and evolutionary algorithms) together with innovations in equipment (such as specialized processors). These technologies allow AI systems to respond to different types of stimuli from humans, to adapt to new situations, and even to offer novel solutions not foreseen by the original programmers.[8] .

9. Because of these rapid advances, many jobs that were once performed exclusively by humans are now being entrusted to AI. These systems can complement or even replace human capabilities in many areas, especially in specialized tasks such as data analysis, image recognition, and medical diagnosis. While each application of "weak" AI is tailored for a specific task, many researchers hope to arrive at so-called "General Artificial Intelligence" (AI).*Artificial General Intelligence*, AGI), that is, a single system, which, operating in all cognitive domains, would be able to perform any task within the reach of the human mind. Some argue that such an AI could one day reach the state of "superintelligence", surpassing human intellectual capacity, or contribute to "superlongevity" thanks to advances in biotechnology. Others fear that these possibilities, however hypothetical, will one day eclipse the human person itself, while others welcome this possible transformation.[9] .

10. Underlying these and many other opinions on the subject is an implicit presumption that the word "intelligence" should be used in the same way to refer to both human intelligence and AI. However, this does not seem to reflect the real scope of the concept. As far as humans are concerned, intelligence is in fact a faculty relating to the person as a whole, whereas in the context of AI it is understood in a functional sense, often assuming that the characteristic activities of the human mind can be broken down into digitalized steps, so that even machines can replicate them.[10] .

11. This functional perspective is exemplified by the Turing Test, whereby a machine must be considered "intelligent" if a person is not able to distinguish its behavior from that of another human being.[11] . In particular, in this context, the word "behavior" refers to specific intellectual tasks, while it does not take into account human experience in all its breadth, which includes both the capacities of abstraction and emotions, creativity, aesthetic, moral and religious sense, embracing the whole variety of manifestations of which the human mind is capable. Hence, in the case of AI, the "intelligence" of a system is evaluated, methodologically but also reductionist, based on *of its capacity to produce adequate responses, that is, those associated with human reason, regardless of the way in which these responses are generated*.

12. Its advanced features give AI sophisticated capabilities to *carry out tasks*, but not that of *think*[12] . This distinction is of decisive importance,

Because the way in which "intelligence" is defined will inevitably determine the understanding of the relationship between human thought and such technology.[13] . To realize this, we must remember that the richness of the philosophical tradition and of Christian theology offers a deeper and more complete vision of intelligence, which in turn 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. Since 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 human beings by nature tend toward knowledge."[15] . This human knowledge, with its capacity for abstraction that captures the nature and meaning of things, distinguishes it from the animal world.[16] . The exact nature of intelligence has been the subject of research by philosophers, theologians, and psychologists, who have also examined the way in which human beings understand the world and are part of it, while at the same time occupying a peculiar place in it. Through this research, the Christian tradition has come to understand the person as a being made up of body and soul, both deeply connected to this world and yet reaching beyond it.[17] .

14. In the classical tradition, the concept of intelligence is often declined in the complementary terms of "reason" (*ratio*) and "intellect" (*intellectus*). It is not a question of separate faculties, but, as Saint Thomas Aquinas explains, of two ways of acting of the same intelligence: "the term *intellect* It is deduced from the intimate penetration of truth; while *reason* derives from research and the discursive process»[18] This brief description makes it possible to highlight the two fundamental and complementary prerogatives of human intelligence: *intellectus* It refers to the intuition of truth, that is, capturing it with the "eyes" of the mind, which precedes and supports the same argument, while the *ratio* refers to real reasoning, that is, to the discursive and analytical process that leads to judgment. Together, intellect and reason constitute the two faces of the single act of reasoning. *intelligere*, "operation of man as man" [19] .

15. Presenting the human being as a "rational" being does not mean reducing him to a specific way of thinking, but rather recognizing that the capacity for intellectual understanding of reality shapes and permeates all his activities.[20] , also constituting, whether exercised for good or evil, an intrinsic aspect of human nature. In this sense, the "word 'rational' encompasses all the capacities of the human being: both cognitive and volitional, loving, choosing, desiring. The term 'rational' also includes all the bodily capacities closely related to the above."[21] . Such a broad perspective highlights how in the human person, created in the "image of God," rationality is integrated to elevate, shape and transform both his will and his actions.[22] .

Incarnation

16. Christian thought considers intellectual faculties within the framework of an integral anthropology that conceives the human being as an essentially incarnate being. In the human person, spirit and matter "are not two natures united, but their union constitutes a single nature."[23] In other words, the soul is not the immaterial "part" of the person enclosed in the body, just as the latter is not the outer shell of a subtle and intangible "core," but rather it is the whole human being who is at the same time material and spiritual. This way of thinking reflects the teaching of Sacred Scripture, which considers the human person as a being who lives his relationships with God and with others, hence his typically spiritual dimension, within and through this corporeal existence.[24] . The profound meaning of this condition receives further light from the mystery of the Incarnation, by which God himself assumed our flesh which "has also been raised in us to unequalled dignity."[25] .

17. Although deeply rooted in a corporeal existence, the human person transcends the material world through his soul, which "is as if it were on the horizon of eternity and time." [26] . It includes the capacity for transcendence of the intellect and the self-possession of free will, so that the human being "participates in the light of divine intelligence"[27] . However, the human spirit does not put into practice its normal mode of knowledge without the body.[28] . In this way, the intellectual capacities of the human being form an integral part of an anthropology that recognizes that he is a "unity of soul and body"[29] . Other aspects of this vision will be developed below.

Relationality

18. Human beings "by their very nature are ordered to interpersonal communion"[30] , having the capacity to know one another, to give oneself out of love and to enter into communion with others. Therefore, human intelligence is not an isolated faculty; on the contrary, it is exercised in relationships, finding its full expression in dialogue, collaboration and solidarity. We learn with others, we learn thanks to others.

19. The relational orientation of the human person is ultimately based on the eternal self-giving of the Triune God, whose love is revealed both in creation and in redemption.[31] . The person is called "to participate, through knowledge and love, in the life of God"[32] .

20. This vocation to communion with God is necessarily linked to a call to communion with others. Love of God cannot be separated from love of neighbor (cf. *1Jn*4.20; *Mt*22:37-39). By virtue of the grace of sharing in the life of God, Christians become imitators of the overflowing gift of Christ (cf. *2Cor*9,8-11; *Ef*5,1-2) following his commandment: "that you love one another; as I have loved you, that you also love one another" (*Jn*13,34)[33] . Love and service, which echo the intimate divine life of self-giving, transcend self-interest to respond more fully to the human vocation (cf. *1Jn*2.9). Even more sublime than knowing so many things is the

commitment to care for each other: "If I knew all the secrets and all the knowledge […] but I have no love, I would be nothing" (*1Cor*13, 2).

Relationship with Truth

21. Human intelligence is, ultimately, a "gift from God granted to grasp the truth"[34] . In the double meaning of *intellectus-ratio*, allows the person to access those realities that go beyond mere sensory experience or utility, since "the desire for truth belongs to the very nature of man. Questioning the why of things is inherent to his reason"[35] . Going beyond empirical data, human intelligence "has the capacity to reach intelligible reality with true certainty"[36] . Even when reality is only partially known, "the desire for truth moves […] reason to go ever further; it is even overwhelmed when it finds that its capacity is always greater than what it can achieve"[37] . Although Truth itself exceeds the limits of the human intellect, the latter nevertheless feels irresistibly drawn to it.[38] And driven by this attraction, the human being is led to seek "a deeper truth"[39] .

22. This innate tension in the search for truth manifests itself in a special way in the typically human capacities for semantic understanding and creative production.[40] , through which this search is developed "in a manner appropriate to the dignity of the human person and his social nature"[41] . Likewise, a stable orientation towards truth is essential for charity to be authentic and universal.[42] .

23. The search for truth reaches its highest expression in the opening to those realities that transcend the physical and created world. In God all truths obtain their highest and most original meaning.[43] . Trusting in God is "a moment of fundamental choice, in which the whole person is involved"[44] In this way, the person becomes fully what he is called to be: "intelligence and will develop their spiritual nature to the maximum to allow the subject to carry out an act in which personal freedom is lived in a full way."[45] .

Custody of the world

24. The Christian faith considers creation to be a free act of the Triune God, who, as St. Bonaventure explains, creates "not to increase his own glory, but to manifest it and communicate it."[46] . Since God creates according to His Wisdom (cf.*Sat*9.9;*Jer*10:12), the created world is imbued with an intrinsic order that reflects its design (cf.*Gene*1;*Dn*2,21-22;*Es*45.18;*Salt*74,12-17; 104)[47] , within which He has called human beings to assume a peculiar role:*to cultivate and take care of the world*[48] .

25. Shaped by the divine Craftsman, the human being lives out his identity as an image of God, "guarding" and "cultivating" it (cf.*Gene*2,15) creation, exercising his intelligence and his expertise to help it and develop it according to the Father's plan[49] In this, human intelligence reflects the divine Intelligence that created all things (cf.*Gene*1-2;*Jn*1)[50] , continually sustains and guides her to her ultimate end in Him[51] . In addition, the human being is

called to develop their abilities in science and technology because in them God is glorified (cf.*Sir*38.6). Therefore, in a proper relationship with creation, on the one hand, human beings employ their intelligence and ability to cooperate with God in guiding creation toward the purpose to which He has called it.[52] , while, on the other hand, the same world, as St. Bonaventure observes, helps the human mind to "gradually ascend, as by the different steps of a ladder, to the supreme principle which is God."[53] .

A comprehensive understanding of human intelligence

26. In this context, human intelligence is seen more clearly as a faculty that is an integral part of the way in which the whole person engages with reality. Authentic engagement involves embracing the whole of one's being: spiritual, cognitive, bodily and relational.

27. This interest in facing reality manifests itself in various ways, since each person, in his multiform uniqueness,[54] , seeks to understand the world, relates to others, solves problems, expresses creativity and seeks comprehensive well-being through the synergy of the different dimensions of intelligence[55] . This involves logical and linguistic abilities, but it can also include other ways of interacting with reality. Let us think of the work of the craftsman, who "must be able to discern in inert matter a particular form that others cannot recognize."[56] and bring it to light through their intuition and experience. Indigenous peoples, who live close to the land, often have a deep sense of nature and its cycles.[57] . Similarly, the friend who knows how to find the right word or the person who knows how to manage human relations well exemplify an intelligence that is "the product of reflection, dialogue and generous encounters between people."[58] As Pope Francis observes, "in the age of artificial intelligence we cannot forget that to save humanity we need poetry and love."[59] .

28. At the heart of the Christian vision of intelligence is the integration of truth into the moral and spiritual life of the person, directing his or her actions in the light of God's goodness and truth. According to God's plan, intelligence understood in the full sense also includes the possibility of enjoying what is true, good and beautiful, so that one can say, in the words of the twentieth-century French poet Paul Claudel, that "intelligence is nothing without delight."[60] . Even Dante Alighieri, when he reaches the highest heaven in Paradise, can attest that the culmination of this intellectual pleasure is found in the "intellectual light, full of love; / love of true good, full of bliss; / bliss that transcends all sweetness."[61] .

29. A correct conception of human intelligence, therefore, cannot be reduced to the mere acquisition of facts or the ability to perform certain specific tasks; rather, it implies the openness of the person to the ultimate questions of life and reflects an orientation toward the True and the Good.[62] . Expression in the person of the divine image, intelligence is capable of accessing the totality of being, that is, of considering existence in its integrity that is not exhausted in what is measurable, thus grasping the meaning of what it has come to understand. For believers, this capacity implies, in a special way, the

the possibility of growing in the knowledge of the mysteries of God through the rational deepening of revealed truths (*intellectus fidei*)[63] . The real one*intelligentsia*It is shaped by divine love, which "has been poured into our hearts by the Holy Spirit" (*Rm*5.5). From this it follows that human intelligence possesses an essential contemplative dimension, that is, a disinterested openness to what is True, Good and Beautiful, beyond any particular utility.

Limits of AI

30. In light of what has been said, the differences between human intelligence and current AI systems seem obvious. Although AI is an extraordinary technological achievement capable of imitating some actions associated with rationality, it works only by carrying out tasks, achieving objectives or making decisions based on quantitative data and computational logic. With its analytical power, for example, it excels at integrating data from various fields, building complex systems and fostering interdisciplinary links. In this way, it could facilitate collaboration between experts to solve problems whose complexity is such that "they cannot be addressed from a single perspective or from a single type of interest."[64] .

31. However, while AI processes and simulates certain expressions of intelligence, it remains fundamentally confined to a logical-mathematical realm, which imposes certain inherent limitations on it. Whereas human intelligence continually develops organically over the course of a person's physical and psychological growth and is shaped by a myriad of experiences in the body, AI lacks the ability to evolve in this sense. While advanced systems can "learn" through processes such as machine learning, this type of training is essentially different from the growth development of human intelligence, as it is shaped by its bodily experiences: sensory stimuli, emotional responses, social interactions, and the unique context that characterizes each moment. These elements shape and model the individual in his or her own personal history. In contrast, AI, lacking a physical body, relies on computational reasoning and learning from vast data sets comprising experiences and knowledge gathered, in any case, by human beings.

32. Thus, while AI can simulate some aspects of human reasoning and perform certain tasks with incredible speed and efficiency, its computational capabilities represent only a fraction of the broader capabilities of the human mind. For example, it cannot currently replicate moral discernment or the ability to form authentic relationships. Moreover, a person's intelligence is part of a personal history of intellectual and moral formation, which fundamentally shapes the individual's outlook, involving the physical, emotional, social, moral and spiritual dimensions of his or her life. Since AI cannot offer this breadth of understanding, approaches that rely solely on AI, or that assume it as the primary way of interpreting the world, may lead to "losing the sense of the whole, of the relationships that exist between things, of the broad horizon."[65] .

33. Human intelligence does not consist primarily in performing functional tasks, but in understanding and actively engaging with reality in all its aspects, and it is also capable of surprising intuitions. Since AI does not possess the richness of corporeality, relationality and openness of the human heart to truth and goodness, its capacities, although seemingly infinite, are incomparable with the human capacity to grasp reality. We can learn as much from an illness as from a hug of reconciliation and even from a simple sunset. So many things that we experience as human beings open up new horizons for us and offer us the possibility of attaining new wisdom. No device, which only works with data, can match these and so many other experiences present in our lives.

34. Establishing too strong an equivalence between human intelligence and AI risks succumbing to a functionalist vision, according to which people are evaluated based on the tasks they can perform. However, the value of a person does not depend on the possession of singular capacities, cognitive and technological achievements or individual success, but on their intrinsic dignity based on having been created in the image of God.[66] . Therefore, such dignity remains intact beyond all circumstances, even in those who are unable to exercise their capacities, whether a fetus, a person in an unconscious state or an elderly person who suffers.[67] . It is at the base of the tradition of human rights – and specifically of those that are today called "neuro-rights" – which "constitute an important point of convergence for the search for common ground"[68] and can therefore serve as a fundamental ethical guide in debates about the responsible development and use of AI.

35. In light of this, as Pope Francis observes, "the very use of the word 'intelligence'" in reference to AI "is misleading."[69] and risks neglecting the most valuable part of the human person. From this perspective, AI should not be seen as *an artificial form* of intelligence, but as one of its *products* [70] .

IV. The role of ethics in guiding the development and use of AI

36. Based on these considerations, it is worth asking how AI can be understood within God's plan. Technical-scientific activity does not have a neutral character, being an enterprise *human* which questions the humanistic and cultural dimensions of human ingenuity [71] .

37. Seen as a fruit of the potentialities inscribed in human intelligence [72] , scientific research and the development of technical skills are part of the "collaboration of man and woman with God in the perfection of 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 talents with a view to the higher purpose for which He has granted them.[75] .

38. We can gratefully acknowledge how technology has "remedied countless ills that harmed and limited human beings."[76] , and we can only rejoice in that. However, not all technological innovations represent real progress in themselves.[77] . For this reason, the Church is especially opposed to those applications that

They attack the sanctity of life or the dignity of the person[78] . Like any other human enterprise, technological development must be at the service of the individual and contribute to efforts to achieve "more justice, greater fraternity and a more humane approach to social problems," which "is worth more than technical progress."[79] . Concern about the ethical implications of technological development is shared not only within the Church, but also by scientists, technology scholars and professional associations, who increasingly call for ethical reflection to guide such progress in a responsible manner.

39. To respond to these challenges, attention must be drawn *on the importance of moral responsibility based on the dignity and vocation of the person*. This principle also applies to issues relating to AI. In this area, the ethical dimension is paramount, since it is people who design the systems and determine what they are used for.[80] . Between a machine and a human being, only the latter is truly a moral agent, that is, a morally responsible subject who exercises his freedom in his decisions and accepts the consequences of them.[81] ; only the human being is in relation with truth and good, guided by the moral conscience that calls him to "love and practice good and to avoid evil"[82] , certifying "the authority of the truth with reference to the supreme Good to which the human person feels attracted" [83] ; only the human being can be sufficiently self-aware to listen to and follow the voice of conscience, discerning prudently and seeking the possible good in every situation[84] . Actually, this also belongs to the exercise of intelligence by the person.

40. Like any product of human ingenuity, AI can also be directed toward positive or negative ends.[85] . When used in a way that respects human dignity and promotes the well-being of individuals and communities, it can contribute positively to the human vocation. However, as in all spheres in which human beings are called to make choices, the shadow of evil also extends here. Where human freedom allows the possibility of choosing what is evil, the moral evaluation of this technology depends on how it is directed and used.

41. However, it is not only the ends but also the means used to achieve them that are ethically significant; the global vision and understanding of the person embedded in such systems are also important. Technological products reflect the worldview of their creators, owners, users and regulators.[86] , and with their power they "shape the world and engage consciences in the field of values"[87] At a social level, some technological advances could also reinforce power relationships and dynamics that do not fit with a correct vision of the person and society.

42. Therefore, both the ends and the means used in a given application of AI, as well as the overall vision it embodies, must be assessed to ensure that they respect human dignity and promote the common good.[88] . Indeed, as Pope Francis has said, the "intrinsic dignity of every man and woman" must be "the key criterion for evaluating emerging technologies, which reveal their ethical positivity to the extent that they contribute to manifesting that dignity and increasing its expression, at all levels of human life."[89] , including the social and economic sphere. In this sense, intelligence

Humanity plays a crucial role not only in the design and production of technology, but also in directing its use according to the authentic good of the person.[90] The responsibility for wisely exercising this management falls to each level of society, under the guidance of the principle of subsidiarity and the other principles of the Social Doctrine of the Church.

An aid to human freedom and decisions

43. The commitment to ensure that *AI always defends and promotes the supreme value of the dignity of every human being and the fullness of his or her vocation*It is a criterion of discernment that affects developers, owners, operators and regulators, as well as end users, and remains valid for any use of technology at all levels of its use.

44. An analysis of the implications of this principle, therefore, could begin by taking into consideration the importance of the *moral responsibility*. Since moral causality in the full sense only belongs to agents *personal*, not artificial ones, it is of utmost importance to be able to identify and define who is responsible for AI processes, in particular those that include possibilities for learning, correction and reprogramming. While, on the one hand, empirical methods (*bottom-up*) and very deep neural networks allow AI to solve complex problems, on the other hand, they make it difficult to understand the processes that led to such solutions. This complicates the determination of responsibility since, if an AI application produced undesirable results, it would be difficult to determine to whom to attribute them. To solve this problem, attention must be paid to the nature of the processes of attribution of responsibility (*accountability*)in complex and highly automated contexts, where outcomes are often only observable in the medium to long term. It is therefore important that AI-based decision-makers are held accountable for their decisions and that it is possible to account for the use of AI at each stage of the decision-making process.[91] .

45. In addition to determining responsibilities, the purposes assigned to AI systems must be established. While AI systems may use unsupervised autonomous learning mechanisms and sometimes follow paths that cannot be reconstructed, they ultimately pursue goals assigned to them by humans and are governed by processes established by those who designed and programmed them. This is challenging because, as AI models become increasingly capable of independent learning, the ability to exercise control over them to ensure that such applications serve human purposes may actually be reduced. This raises the critical issue of how to ensure that AI systems are ordered for the good of humans, rather than against them.

46.   If an ethical use of AI systems calls into question, first of all, those who develop, produce, manage and supervise them, this responsibility is also shared by the users. Indeed, as Pope Francis observes, "what the machine does is a technical choice between several possibilities and is based on well-defined criteria or statistical inferences. The human being, on the other hand, not only chooses, but in his heart is capable of deciding." [92] . Whoever uses AI to do a job and follows the results creates

a context in which he is ultimately responsible for the power he has delegated. Therefore, to the extent that AI can assist humans in making decisions, the algorithms that guide it must be reliable, secure, robust enough to handle inconsistencies, and transparent in their operation to mitigate biases (*bias*) and unwanted side effects[93] Regulatory frameworks should ensure that all legal entities can account for the use of AI and all its consequences, with appropriate measures to safeguard transparency, privacy and accountability (*accountability*)[94] Furthermore, users must be careful not to rely excessively on AI for their decisions, increasing the already high degree of subordination to technology that characterizes contemporary society.

47. The Church's moral and social teaching helps to propose a use of AI that preserves the human capacity for action. Considerations related to justice, for example, must address issues such as fostering just social dynamics, upholding international security and promoting peace. By exercising prudence, individuals and communities can discern how to use AI for the benefit of humanity, while avoiding applications that might undermine human dignity or harm the planet. In this context, the concept of "responsibility" must be understood not only in its strictest sense, but "taking responsibility for the other, and not only [...] giving an account of what has been done."[95] .

48. AI, therefore, like any technology, can be part of a conscious and responsible response to humanity's vocation to good. However, as already stated, it must be guided by human intelligence in order to align itself with that vocation, ensuring respect for the dignity of the person. Recognizing this "eminent dignity," the Second Vatican Council affirms that "the social order [...] and its progressive development must at all times be subordinated to the good of the person."[96] In light of this, the use of AI, as Pope Francis has said, must be accompanied by "an ethic based on 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 creation."[97] .

V. Specific issues

49. Within this general perspective, some observations will now illustrate how the arguments presented can contribute to providing guidance in concrete situations, in accordance with the "wisdom of the heart" proposed by Pope Francis.[98] . Although not exhaustive, this proposal is offered at the service of a dialogue that seeks to identify those modalities in which AI can defend human dignity and promote the common good.[99] .

AI and society

50. As Pope Francis has said, "the intrinsic dignity of each person and the fraternity that binds us together as members of a single human family must be at the forefront of the

"the basis for the development of new technologies and serve as indisputable criteria for evaluating them before their use"[100] .

51. Seen in this light, AI could "introduce important innovations in agriculture, education and culture, an improvement in the standard of living of entire nations and peoples, the growth of human fraternity and social friendship" and therefore be "used to promote integral human development"[101] It could also help organizations identify people in need and counteract cases of discrimination and marginalization. In these and other similar ways, AI could contribute to human development and the common good.[102] .

52. However, while AI holds many potentials for good, it can also hinder or even oppose human development and the common good. Pope Francis has observed that "the data available so far seem to suggest that digital technologies have served to increase inequalities in the world. Not only differences in material wealth, which are significant, but also differences in access to political and social influence."[103] In this sense, AI could be used to prolong situations of marginalization and discrimination, to create new forms of poverty, to widen the "digital divide" and aggravate social inequalities.[104] .

53. Furthermore, the fact that most of the power over major AI applications is currently concentrated in the hands of a few powerful corporations raises significant ethical issues. Compounding this problem is also the inherent nature of AI systems, where no single individual can have complete oversight of the vast and complex data sets used for computation. This lack of accountability (*accountability*) well defined, there is a risk that AI can be manipulated for personal or business gain, or to steer public opinion towards the interests of a sector. Such entities, motivated by their own interests, have the capacity to exercise "forms of control as subtle as they are invasive, creating mechanisms for manipulating consciences and the democratic process"[105] .

54. In addition to this, there is a risk that AI will be used to promote what Pope Francis has called the "technocratic paradigm", which tends to solve all the world's problems with technological means alone.[106] . According to this paradigm, human dignity and fraternity are often set aside in the name of efficiency, "as if reality, goodness and truth spring spontaneously from technological and economic power itself."[107] . On the contrary, human dignity and the common good must never be abandoned in the name of efficiency. [108] , through "technological developments that do not lead to an improvement in the quality of life of all humanity, but instead aggravate inequalities and conflicts, cannot be considered true progress"[109] . Rather, AI must be put "at the service of another type of progress that is healthier, more human, more social, more integral."[110] .

55. To achieve this goal, a deeper reflection on the relationship between autonomy and responsibility is necessary, since greater autonomy entails greater responsibility on the part of each person in the various aspects of life in common. For Christians, the foundation of this responsibility is the recognition that every person is a person who is capable of living in a life of mutual respect.

Human capacity, including the autonomy of the person, comes from God and is intended to be placed at the service of others.[111] . Therefore, rather than pursuing only economic or technological objectives, AI should be used for the "common good of the entire human family", that is, for the set of "conditions of social life which make it possible for associations and for each of their members to achieve their own perfection more fully and more easily."[112] .

AI and human relations

56. The Second Vatican Council affirms that the human being is by "his innermost nature a social being, and cannot live or develop his qualities without relating to others."[113] . This conviction underlines that life in society belongs to the nature and vocation of the person. [114] As social beings, human beings seek relationships that involve reciprocal exchange and the search for truth, "some expose to others the truth that they have found or believe they have found, to help each other in the search for the truth"[115] .

57. This search, together with other aspects of human communication, presupposes the encounter and mutual exchange between people who bear within them the imprint of their own stories, their own thoughts, convictions and relationships. Nor can we forget that human intelligence is a multiple, plural and complex reality: individual and social; rational and affective; conceptual and symbolic. Pope Francis highlights this dynamic, pointing out how "we can seek the truth together in dialogue, in calm conversation or in passionate discussion. It is a persevering journey, made also of silence and suffering, capable of patiently gathering the long experience of individuals and peoples. [...] The problem is that a path of fraternity, local and universal, can only be followed by free spirits ready for real encounters."[116] .

58. It is in this context that the challenges posed by AI to relationships can be considered. Like other technological means, AI has the capacity to foster connections within the human family. However, AI could also hinder a true encounter with reality and ultimately lead people to "a deep and melancholic dissatisfaction in interpersonal relationships, or a harmful isolation."[117] . Authentic human relationships, on the contrary, require the human wealth of knowing how to be with others, sharing their pain, their needs and their joy.[118] Since human intelligence is also expressed and enriched through interpersonal and embodied forms, authentic and spontaneous encounters with others are indispensable for engaging with reality in its entirety.

59. Because "true wisdom involves encountering reality"[119] , advances in AI pose a further challenge: since it is able to effectively imitate the workings of human intelligence, it can no longer be assumed whether one is interacting with a human or a machine. Although "generative" AI is capable of producing text, speech, images and other *output* advanced tools that are usually the work of human beings, it must be considered as what it is: a tool, not a person.[120] . This distinction is seen in

often obscured by the language used by professionals, which tends to anthropomorphize AI and thus blur the line between what is human and what is artificial.

60. The anthropomorphization of AI poses particular problems for the growth of children, who may be encouraged to develop patterns of interaction that understand human relationships in a utilitarian way, as is the case with*chatbots*. Such approaches risk leading young people to perceive teachers as dispensers of information rather than as teachers who guide and support them in their intellectual and moral growth. Genuine relationships, rooted in empathy and a loyal commitment to the good of others, are essential and irreplaceable for fostering the full development of the person. Genuine relationships, rooted in empathy and a loyal commitment to the good of others, are essential and irreplaceable for fostering the full development of the person.

61. In this context, it is important to clarify – although anthropomorphic terminology is often used – that no AI application is capable of truly feeling empathy. Emotions cannot be reduced to facial expressions or sentences generated in response to user requests; instead, emotions are understood in terms of the way in which a person, as a whole, relates to the world and to his or her own life, with the body playing a central role. Empathy requires the ability to listen, to recognise the irreducible singularity of the other, to welcome his or her otherness and also to understand the meaning of his or her silences.[121] . In contrast to the realm of analytical judgments, where AI predominates, true empathy exists in the relational realm. It challenges the perception and appropriation of the other's experience, while maintaining the distinctiveness of each individual.[122] . Although AI can simulate empathetic responses, artificial systems cannot reproduce the personal and relational nature of genuine empathy.[123] .

62. Misrepresenting AI as a person should therefore always be avoided, and doing so for fraudulent purposes is a serious ethical violation that could erode social trust. Similarly, using AI to deceive in other contexts–such as education or human relations, including the sphere of sexuality–It should be considered immoral and requires careful monitoring to prevent potential harm, maintain transparency and ensure the dignity of all.[124] .

63. In an increasingly individualistic world, some turn to AI in search of deep human relationships, simple companionship, or even emotional relationships. However, while recognizing that human beings are made to experience authentic relationships, it must be reiterated that AI can only simulate them. These relationships with other human beings are an integral part of how a human person grows into what he or she is destined to be. Therefore, if AI is used to foster genuine contacts between people, it can contribute positively to the full realization of the person; on the other hand, if, instead of such relationships and the connection with God, relationships are replaced by technological means, we risk replacing authentic relationality with a lifeless simulacrum (cf.*Salt*160.20;*Rm* 1,22-23).   Instead of retreating into artificial worlds, we are called to engage seriously and

committed to reality, to the point of identifying with the poor and those who suffer, to console those who are in pain and create bonds of communion with everyone.

AI, economy and work

64. Given its transversal nature, AI is also finding increasing application in economic and financial systems. Today, the largest investments are being made not only in the technological sector but also in the energy, financial and media sectors, with particular reference to the areas of marketing and sales, logistics, technological innovation, *compliance* and risk management. The ambivalent nature of AI emerges from its application in these areas, as a source of enormous opportunities but also of profound risks. A first real criticism stems from the possibility that, due to the concentration of supply in a few companies, these are the only ones that benefit from the value created by AI and not the companies in which it is used.

65. In the economic and financial sphere, there are more general aspects on which AI can have an impact, which must be carefully assessed, linked above all to the interaction between concrete reality and the digital world. A first point to consider concerns the coexistence of economic and financial institutions that are present in a given context in different and alternative forms. This is a factor to be promoted, since it could bring with it benefits in terms of supporting the real economy, favouring its development and stability, especially in times of crisis. However, it must be stressed that digital realities, being free from spatial constraints, tend to be more homogeneous and impersonal compared to a community linked to a specific place and a specific history, with a common trajectory characterised by shared values   and hopes, but also by inevitable disagreements and divergences. This diversity is an undeniable resource for the economic life of a community. Handing over the economy and finance entirely to digital technology would mean reducing this variety and richness, so that many solutions to economic problems, accessible through a natural dialogue between the parties involved, could no longer be viable in a world dominated by procedures and only apparent proximity.

66. Another area where the impact of AI is already being felt deeply is the world of work. As in many other areas, it is causing substantial transformations in many professions with diverse effects. On the one hand, AI has the potential to increase skills and productivity, offering the possibility of creating jobs, allowing workers to concentrate on more innovative tasks and opening up new horizons for creativity and inventiveness.

67. However, while AI promises to boost productivity by taking over mundane tasks, workers are often forced to adapt to the speed and demands of machines, rather than the latter being designed to assist those working. Thus, contrary to the advertised benefits of AI, current approaches to the technology may, paradoxically, *despecialize* workers, subjecting them to automated surveillance and relegating them to rigid, repetitive tasks. The need to keep up with technology can erode the sense of self

the ability of workers to act and stifle the innovative capabilities that they are called to contribute in their work[125] .

68. AI is eliminating the need for certain tasks previously performed by humans. If it is used to replace human workers rather than accompany them, there is "a substantial risk of disproportionate benefit to a few at the expense of impoverishment of many."[126] . Furthermore, as AI becomes more powerful, there is also the associated danger that work will lose its value in the economic system. This is the logical consequence of the technocratic paradigm: the world of a humanity subordinated to efficiency, in which, ultimately, the cost of that humanity must be cut. Instead, human lives are precious in themselves, beyond their economic return. Pope Francis notes that, as a consequence of this paradigm, today "it does not seem to make sense to invest in enabling the slow, weak or less gifted to make their way in life."[127] And we must conclude with him that "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. For this reason, it is good to always remember that "the royal order must be subject to the personal order, and not the other way around."[129] . Therefore, human work must be not only at the service of profit, but "of man, of the whole man, taking into account his material needs and his intellectual, moral, spiritual and religious demands."[130] In this context, the Church recognizes that work is "not only [...] a way of earning one's bread," but also "an indispensable dimension of social life" and "a channel for personal growth, for establishing healthy relationships, for expressing oneself, for sharing gifts, for feeling co-responsible for the improvement of the world, and ultimately for living as a people."[131] .

70. Because work is "part of the meaning of life on this earth, a path to maturation, human development and personal fulfillment," "technological progress should not be expected to increasingly replace human work, thereby harming humanity itself."[132] Rather, efforts should be made to promote it. In this view, AI should assist human judgment, not replace it, just as it should never degrade creativity or reduce workers to mere "cogs in a machine." Therefore, "respect for the dignity of workers and the importance of employment to the economic well-being of individuals, families and societies, job security and wage equity should be a high priority for the international community as these forms of technology are increasingly introduced into the workplace."[133] .

AI and healthcare

71. As participants in God's healing work, health care workers have the vocation and responsibility to be "guardians and servants of human life."[134] . For this reason, the healthcare profession has an "intrinsic and essential ethical dimension", as recognised by the Hippocratic Oath, which requires doctors and healthcare professionals to commit to "absolutely respecting human life and its character"

sacred"[135] . This commitment, following the example of the Good Samaritan, must be developed by men and women "who do not allow a society of exclusion to be established, but who become neighbors and raise up and rehabilitate the fallen, so that the good may be common."[136] .

72. Seen in this light, AI appears to have enormous potential in various applications in the medical field, for example, to assist in the diagnostic work of healthcare professionals, facilitating the relationship between patients and medical staff, offering new treatments and expanding access to quality care even for those who suffer from isolation or marginalization. In this way, technology could enhance "closeness filled with compassion and tenderness"[137] from health care personnel to the sick and the suffering.

73. However, if AI were used not to improve but to completely replace the relationship between patients and healthcare professionals, leaving the former to interact with a machine rather than a human being, this would result in the reduction of a very important human relational structure into a centralised, impersonal and unequal system. Rather than fostering solidarity with the sick and suffering, such AI applications would risk aggravating the loneliness that often accompanies illness, particularly in the context of a culture in which "people are no longer considered a primary value to be respected and protected". [138] Such use of these systems would not be consistent with respect for the dignity of the person and solidarity with those who suffer.

74. Responsibility for the well-being of patients and related decisions affecting their lives is at the heart of the healthcare profession. This responsibility requires medical personnel to use all their ability and intelligence to implement well-considered and ethically motivated decisions regarding the persons entrusted to their care, while always respecting the inviolable dignity of the patient and the principle of informed consent. Consequently, decisions regarding the treatment of patients and the associated burden of responsibility must always remain in the hands of individuals and never be delegated to AI.[139] .

75. In addition to this, the use of AI to determine who should receive treatment, based primarily on economic or efficacy criteria, is a particularly problematic case of a "technocratic paradigm" that should be rejected.[140] . In fact, "optimizing resources means using them in an ethical and supportive way and not penalizing the most fragile" [141] ; not to mention that, in this field, these instruments are exposed to "forms of prejudice and discrimination. Systemic errors can easily multiply, producing not only injustices in individual cases but also, by domino effect, real forms of social inequality"[142] .

76. Furthermore, the integration of AI into healthcare also poses the risk of amplifying other existing inequalities in access to care. As healthcare increasingly focuses on prevention and lifestyle-based approaches, it may be the case that AI-powered solutions may unintentionally favour wealthier populations, who already enjoy greater access to medical resources and quality nutrition. This trend is only likely to exacerbate the effects of AI on the health system.

There is a risk of reinforcing the model of "medicine for the rich", where people with financial means benefit from advanced prevention tools and personalised medical information, while others struggle to access even basic services. Equitable governance frameworks are therefore needed to ensure that the use of AI in healthcare does not exacerbate existing inequalities, but rather serves the common good.

AI and education

77. The words of the Second Vatican Council remain fully relevant: "True education aims at the formation of the human person in order to achieve his ultimate end and to the good of the various societies of which man is a member."[143] . It follows from this that education "is never a simple process of transmitting knowledge and intellectual skills, but rather aims to contribute to the integral formation of the person in his or her various dimensions (intellectual, cultural, spiritual...) including, for example, community life and relationships experienced within the academic community"[144] , in respect for nature and the dignity of the human person.

78. This approach implies a commitment to forming the mind, but always as part of the integral development of the person: "We have to break this imaginary about education, according to which to educate is to fill the head with ideas. In this way we educate automatons, macrocephalous, not people. To educate is to take risks in the tension between the head, the heart and the hands."[145] .

79. At the heart of this work of forming the integral human person is the indispensable relationship between teacher and student. Teachers are not limited to transmitting knowledge, but are also models of the principal human qualities and inspirers of the joy of discovery.[146] . Their presence motivates students both through the content they teach and through the attention they show to them. This bond fosters trust, mutual understanding, and the ability to address the unique dignity and potential of each individual. In the student, this can generate a genuine desire to grow. The physical presence of the teacher creates a relational dynamic that AI cannot replicate, a dynamic that deepens engagement and nurtures the student's holistic development.

80. In this context, AI presents both opportunities and challenges. If used wisely, within a genuine relationship between teacher and student and geared to the true purposes of education, it can become a valuable educational resource, improving access to education and offering personalized and effective support. a *feedback* immediate benefit to students. These advantages could improve the learning experience, especially in cases where special individual attention is required or where educational resources are scarce.

81. On the other hand, an essential task of education is to form "the intellect to reason well in all matters, to project itself toward the truth and to grasp it."[147] , helping the "language of the head" to grow in harmony with the "language of the heart" and the "language of the hands" [148] . This is even more vital in an age marked by technology, in which

that "it is not just a matter of 'using' communication instruments, but of living in a highly digitalized culture, which profoundly affects the notion of time and space, the perception of oneself, of others and of the world, the way of communicating, of learning, of informing oneself, of entering into relationships with others"[149] . However, instead of promoting "a cultured intellect" that "carries with it power and grace into every work and occupation it undertakes"[150] , the extensive use of AI in education could lead to an increasing dependence of students on technology, which would block their ability to carry out certain activities autonomously and worsen their dependence on screens.[151] .

82. Furthermore, while some AI systems have been specifically designed to help people develop their own critical thinking and problem-solving skills, many other programs simply provide answers rather than prompting students to find them themselves or write texts themselves.[152] . Instead of training young people to accumulate information and give quick answers, education should "promote responsible freedoms, which make meaningful and intelligent choices at crossroads."[153] . From this, "education in the use of forms of artificial intelligence should focus above all on promoting critical thinking. Users of all ages, but especially young people, need to develop a capacity for discernment in the use of data and content obtained on the web or produced by artificial intelligence systems. Schools, universities and scientific societies are called upon to help students and professionals to make their own the social and ethical aspects of the development and use of technology." [154] .

83. As St. John Paul II recalled, "in today's world, characterized by such rapid progress in science and technology, the tasks of the Catholic University assume ever greater importance and urgency."[155] . In particular, Catholic Universities are urged to make themselves present as great laboratories of hope at this crossroads of history. In an inter- and transdisciplinary key, they should exercise "with wisdom and creativity"[156] , a precise investigation of this phenomenon; contributing to revealing the healthy potential in the various fields of science and reality; always guiding them towards applications that are ethically qualified, clearly at the service of the cohesion of our society and the common good; reaching new frontiers of dialogue between Faith and Reason.

84. Furthermore, it is known that current AI programs can provide distorted or artifactual information, leading students to rely on inaccurate content. "This not only risks legitimizing the spread of fake news and reinforcing the advantage of a dominant culture, but also undermining the educational process in the making (*in the nut*)»[157] Over time, the distinction between appropriate and inappropriate uses of such technology, both in education and research, could become clearer. At the same time, a decisive guiding principle is that the use of AI must always be transparent and never ambiguous.

AI, disinformation, deepfake and abuse

85. AI is also a support for the dignity of the human person when it is used as an aid to understanding complex facts or as a guide to valid resources in the search for truth. [158] .

86. However, there is also a serious risk that AI will generate manipulated content and false information, which, being very difficult to distinguish from real data, can easily lead to misleading people. This can happen accidentally, as in the case of AI "hallucination", which occurs when a generative system produces content that appears to reflect reality but is not true. While it is difficult to manage this phenomenon, since the generation of information that mimics that produced by humans is one of the main characteristics of AI, it is challenging to keep these risks under control. The consequences of such aberrations and false information can be very serious. Therefore, all those who produce and use AI must be committed to the truthfulness and accuracy of the information produced by such systems and disseminated to the public.

87. If, on the one hand, AI has the latent potential to generate fictitious content, on the other hand, there is the even more worrying problem of its intentional use for manipulation. This can occur, for example, when a human operator or an organization intentionally generates and disseminates information, such as *deepfakes* of images, videos and audio, to deceive or harm. A *deepfake* is a false representation of a person that has been modified or generated by an AI algorithm. The danger posed by *deepfake* This is particularly evident when they are used to attack or harm someone: although the images or videos may be artificial in themselves, the damage they cause is real, and they leave "deep scars in the hearts of those who suffer from them", who feel "hurt in their human dignity".[159] .

88. In general, by distorting "the relationship with others and reality"[160] , AI-generated counterfeit audiovisual products can progressively undermine the foundations of society. This requires careful regulation, as disinformation, especially through AI-controlled or influenced media, can spread unintentionally, fuelling political polarisation and social discontent. Indeed, when society becomes indifferent to the truth, various groups construct their own versions of the "facts", thus creating "mutual connections and interdependencies"[161] , which are at the base of social life, are weakened. Because the *deepfake* They lead to doubts and AI-generated fake content erodes trust in what is seen and heard, and polarisation and conflict will only grow. Such widespread deception is not a secondary problem: it strikes at the heart of humanity, demolishing the fundamental trust on which societies are built.[162] .

89. Combating AI-fueled counterfeits is not just the job of experts in the field, but requires the efforts of all people of good will. "If technology is to serve human dignity and not harm it, and if it is to promote peace rather than violence, the human community must be proactive in addressing these trends while respecting human dignity and promoting the good."[163] . Those who produce and share AI-generated material should always be careful to check the veracity of what they disseminate and, in any case, should "avoid sharing

words and images that degrade human beings, and therefore exclude that which fuels hatred and intolerance, debases the beauty and intimacy of human sexuality, or exploits the weak and defenseless.[164] . This requires constant caution and careful discernment on the part of each user regarding their activity on the networks.[165] .

AI, privacy and control

90. Human beings are intrinsically relational, and the data that each person creates in the digital world can therefore be considered an objectified expression of that relational nature. Indeed, data do not simply transmit information; they also convey personal and relational knowledge which, in an increasingly digitalised context, can become a power over the individual. Moreover, while some types of data may concern public aspects of a person's life, others may touch on their intimacy, perhaps even their conscience. Ultimately, privacy plays a fundamental role in protecting the boundaries of people's inner lives and guaranteeing their freedom to relate, express themselves and make decisions without being unduly controlled. This protection is also linked to the defence of religious freedom, since digital surveillance can also be used to exercise control over the lives of believers and the expression of their faith.

91. The issue of privacy should be addressed from the perspective of concern for legitimate freedom and the inalienable dignity of the person beyond all circumstances.[166] In this sense, the Second Vatican Council included the right "to the protection of private life" among the fundamental rights "to live a truly human life" that should be the same for all people, by virtue of their "exalted dignity"[167] The Church also affirmed the right to legitimate respect for private life in the context of the right of the person to a good reputation, to the defense of his physical and mental integrity and to be free from undue violations and intrusions.[168] : all are elements related to due respect for the intrinsic dignity of the human person[169] .

92. Advances in data processing and analysis made possible by AI make it possible to detect patterns in a person's behaviour and thinking even from a minimal amount of information, making data privacy even more necessary as a safeguard for the dignity and relational nature of the human person. As Pope Francis observed, "As closed and intolerant attitudes develop that close us off from others, distances are shortened or disappear to the point that the right to privacy no longer exists. Everything becomes a kind of spectacle that can be spied on, watched, and life is exposed to constant control."[170] .

93. While there may be legitimate and correct ways to use AI in accordance with human dignity and the common good, its use for the purpose of surveillance, for exploitation, to restrict the freedom of individuals or to benefit a few at the expense of the many is not justifiable. The risk of over-surveillance must be monitored by appropriate oversight bodies, in order to ensure transparency and public accountability. Those responsible for such surveillance should never exceed their

authority, which must always be in favor of the dignity and freedom of each person as an essential basis of a just society tailored to man.

94. Indeed, "fundamental respect for human dignity requires that the uniqueness of the person be rejected from being identified with a set of data."[171] . This applies especially to uses of AI related to evaluating individuals or groups on the basis of their behavior, characteristics, or history, a practice known as "social credit" (*social scoring*): «In social and economic decision-making processes, we must be cautious about entrusting judgments to algorithms that process data collected, often surreptitiously, about people and their past characteristics and behaviors. Such data can be contaminated by social prejudices and preconceived ideas. Above all, because an individual's past behavior must 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, nor to exclude compassion, mercy, forgiveness and, above all, openness to the hope of change in the individual.»[172] .

AI and the protection of our common home

95. AI has numerous promising applications to improve our relationship with our common home, such as creating models to predict extreme weather events, proposing engineering solutions to reduce their impact, managing relief operations and predicting population movements.[173] . In addition, AI can support sustainable agriculture, optimize energy consumption, and provide early warning systems for public health emergencies. All of these advances could increase resilience to climate-related challenges and promote more sustainable development.

96. At the same time, current AI models and the system of *hardware* The technologies that support them require large amounts of energy and water and contribute significantly to CO2 emissions, as well as being resource-intensive. This reality is often obscured by the way this technology is presented in the popular imagination, where words like "cloud" (*cloud*)[174] It may give the impression that data is stored and processed in an ethereal domain, separate from the physical world. Instead, *the cloud* is not an ethereal domain separate from the physical world, but like any computing device, it needs machines, wires, and power. The same is true of the technology underlying AI. As these systems grow in complexity, especially large language models (*Large Language Models*, LLM), these require ever larger data sets, greater computing power and imposing storage infrastructures (*storage*) data. Given the high cost that these technologies entail for the environment, the development of sustainable solutions is vital to reduce their impact on our "common home".

97. For this reason, as Pope Francis teaches, it is important to "find solutions not only in technology but in a change in the human being."[175] . Furthermore, a correct conception of creation recognizes that the value of all created things cannot be reduced to mere utility. A fully human management of the earth therefore rejects the

Distorted anthropocentrism of the technocratic paradigm, which aims to "extract everything possible" from nature[176] , and the "myth of progress," according to which "ecological problems will be solved simply with new technical applications, without ethical considerations or fundamental changes."[177] This mentality must give way to a more holistic vision that respects the order of creation and promotes the integral good of the human person, without neglecting the safeguarding of "our common home."[178] .

AI and war

98. The Second Vatican Council and subsequent papal magisterium have vigorously maintained that peace is not merely the absence of war and is not limited to the maintenance of a balance of power between adversaries. On the contrary, in the words of St. Augustine, peace is "the tranquillity of order".[179] . Peace cannot be achieved without the protection of human property, free communication, respect for the dignity of persons and peoples, and the constant practice of fraternity. Peace is the work of justice and the effect of charity, and cannot be achieved through force alone or the mere absence of war. It must be built above all through patient diplomacy, the active promotion of justice, solidarity, integral human development, and respect for the dignity of all persons.[180] . Thus, the instruments intended to maintain a certain peace must never be allowed to be used for purposes of injustice, violence or oppression, but must always be subordinated to the "firm purpose of respecting other men and peoples, as well as their dignity, and the passionate exercise of fraternity."[181] .

99. While the analytical capabilities of AI could be used to help nations seek peace and ensure security, the "warlike use of artificial intelligence" can be highly problematic. Pope Francis has observed that "the possibility of conducting military operations by means of remote control systems has led to a diminished awareness of the devastation they have caused and of the responsibility in their use, contributing to an even colder and more distant approach to the immense tragedy of war."[182] . Furthermore, the ease with which weapons, when converted into autonomous weapons, make war more viable goes against the very principle of war as a last resort in cases of legitimate defense.[183] , increasing the resources of war far beyond the reach of human control and accelerating a destabilizing arms race with devastating consequences for human rights[184] .

100. In particular, lethal autonomous weapons systems, capable of identifying and attacking targets without direct human intervention, are "of great ethical concern" because they lack "the uniquely human capacity for moral judgment and ethical decision-making."[185] For these reasons, Pope Francis has urgently called for a rethinking of the development of such weapons in order to prohibit their use, "starting now with an effective and concrete commitment to introduce ever greater and more significant human control. No machine should ever choose to end the life of a human being."[186] .

101. Because the gap between machines capable of autonomous precision killing and those capable of mass destruction is short, some researchers working in the field of AI have expressed concern that such technology represents an "existential risk," being capable of acting in ways that could

threaten the survival of humanity or entire regions. This possibility must be taken seriously into consideration, in line with the ongoing concern about those technologies that give war "an uncontrolled destructive power that affects many innocent civilians"[187] , including children. In this context, the call for action is more urgent than ever.*Gaudium et spes* to "examine war with a completely new mindset"[188] .

102. At the same time, while the theoretical risks of AI deserve attention, there are also more urgent and immediate dangers regarding how individuals with malicious intent might make use of it.[189] . AI, like any other tool, is an extension of humanity's power, and while we cannot predict everything it will be capable of, it is unfortunately well known what humans are capable of. The atrocities already committed throughout human history are enough to raise deep concern about the potential abuses of AI.

103. As Saint John Paul II observed, "Today humanity possesses instruments of unprecedented power. It can make this world a garden, or reduce it to a pile of rubble." [190] . In this perspective, the Church recalls, with Pope Francis, that "human freedom can make its intelligent contribution towards a positive evolution" or be directed "on a path of decadence and mutual destruction."[191] . To prevent humanity from falling into a spiral of self-destruction[192] , it is necessary to take a clear position against all applications of technology that intrinsically threaten the life and dignity of the human person. This commitment requires careful discernment on the use of AI, in particular on military defence applications, to ensure that they always respect human dignity and are at the service of the common good. The development and use of AI in weaponry should be subject to the highest levels of ethical control, ensuring that human dignity and the sacredness of life are respected.[193] .

AI and humanity's relationship with God

104. Technology offers effective means to manage and develop the planet's resources, although 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 could match or surpass human intelligence, capable of achieving advances beyond what was imaginable. Some even speculate that AGI could achieve superhuman capabilities. As society moves away from the transcendent, some are tempted to turn to AI in search of meaning or fulfillment, desires that can only find true satisfaction in communion with God. [194] .

105. However,*The presumption of replacing God with a work of one's own hands is idolatry* , against which Holy Scripture warns (e.g.*Ex*20:4; 32:1-5; 34:17). Moreover, AI can be even more seductive than traditional idols: in fact, unlike the latter, which "have mouths, and do not speak, have eyes, and do not see, have ears, and do not hear" (*Salt*115,5-6), AI can "speak," or at least give the illusion of doing so

(cf. *Ap* 13.15). However, it must be remembered that AI is but a pale reflection of humanity, having been produced by human minds, trained from human-produced material, predisposed to human stimuli, and sustained by human labor. It cannot have many of the capacities that are specific to human life, and it is also fallible. Hence, by seeking in it a greater "Other" with whom to share its existence and responsibility, humanity runs the risk of creating a substitute for God. Ultimately, it is not AI that is deified and worshipped, but rather the human being, thus becoming a slave to his own work.[195] .

106. Although it can be put at the service of humanity and contribute to the common good, AI remains a product of human hands, involving "the skill and imagination of a man" (*Hch* 17:29), to whom a disproportionate value must never be attributed. As the Book of Wisdom states: "A man made them, a being of borrowed breath fashioned them, and no human being can fashion a god in his likeness. Being mortal, his wicked hands produce a corpse and he is worth more than the objects he worships, for he has life, while others will never have it" (*Sat* 15, 16-17).

107. On the contrary, "by his interiority [the human being] transcends the entire universe; he returns to this profound interiority when he enters into his heart, where God awaits him, the searcher of hearts, and where he personally, under God's gaze, decides his own destiny."[196] It is in the heart – Pope Francis recalls – that each person discovers the "paradoxical connection between the appreciation of one's own being and openness to others, between the very personal encounter with oneself and the gift of self to others."[197] . For this reason, "only the heart is capable of placing the other powers and passions and our whole person in an attitude of reverence and loving obedience to the Lord."[198] , which "offers to treat us as a you always and forever"[199] .

VI. Final reflection

108. Considering all the various challenges posed by technological progress, Pope Francis has pointed out the need for a development "in responsibility, values, conscience" proportional to the increase in possibilities offered by this technology.[200] , recognizing that "the more a man's power increases, the greater his responsibility"[201] .

109. On the other hand, "the essential and fundamental question" always remains: "whether man, as man, in the context of this progress, is truly becoming better, that is, more spiritually mature, more aware of the dignity of his humanity, more responsible, more open to others, particularly to the most needy and the weakest, more ready to give and offer help to all."[202] .

110. It is therefore crucial to be able to critically assess the different applications in particular contexts, in order to determine whether or not they promote human dignity and vocation, and the common good. As with many technologies, the effects of the different applications of AI are not always predictable at the outset. As these applications and their social impact become more evident, appropriate feedback must begin to be provided at all levels of society, in accordance with the needs of society.

with the principle of subsidiarity. It is important that individual users, families, civil society, businesses, institutions, governments and international organisations, each at their own level of competence, commit to ensuring that the use of AI is appropriate for the good of all.

111. Today, a major challenge and opportunity for the common good lies in considering such technology within a horizon of relational intelligence, which emphasizes the interconnection of individuals and communities and exalts shared responsibility for promoting the integral well-being of others. The twentieth-century philosopher Nikolaj Berdjaev observed that people often blame machines for individual and social problems; however, "this only humiliates man and does not correspond to his dignity," because "it is undignified to transfer responsibility from man to a machine."[203] Only the human person can be said to be morally responsible, and the challenges of a technological society ultimately concern its *spirit*. Therefore, to face such challenges "requires a revitalization of spiritual sensitivity"[204] .

112. Another point to consider is the call, provoked by the appearance of AI on the world scene, *to renew the appreciation of everything that is human* As the French Catholic writer Georges Bernanos observed many years ago, "The danger lies not in the multiplication of machines, but in the ever-increasing number of men accustomed from childhood to desire nothing more than what machines can provide them."[205] The challenge is as real today as it was then, as the rapid advance of digitalisation carries with it the risk of "digital reductionism", whereby non-quantifiable experiences are pushed aside and then forgotten, or deemed irrelevant because they cannot be calculated in formal terms. AI should only be used as a complementary tool to human intelligence and not replace its richness.[206] . Cultivating those aspects of human life that go beyond calculation is of crucial importance to preserve an "authentic humanity," which "seems to dwell in the midst of technological civilization, almost imperceptibly, like the fog that seeps under a closed door."[207] .

True wisdom

113. Today, the vast expanse of knowledge is accessible in ways that would have amazed past generations; however, to prevent the advances of science from remaining humanly and spiritually sterile, we must go beyond the mere accumulation of data and aspire to true wisdom.[208] .

114. This wisdom is the gift that humanity most needs to address the profound questions and ethical challenges posed by AI: "Only by equipping ourselves with a spiritual outlook, only by recovering a wisdom of the heart, will we be able to read and interpret the novelty of our time."[209] . This "wisdom of the heart" is "that virtue that allows us to intertwine the whole and the parts, the decisions and their consequences." Humanity cannot "expect this wisdom from machines," as it "allows itself to be found by

who seeks her and lets herself be seen by the one who loves her; she anticipates the one who desires her and goes in search of the one who is worthy of her (cf. *Sat* 6,12-16)»[210] .

115. In a world marked by AI, we need the grace of the Holy Spirit, who "allows us to see things with the eyes of God, to understand relationships, situations, events and to discover their meaning."[211] .

116. Because "what measures the perfection of people is their degree of charity, not the amount of data and knowledge they accumulate"[212] , the way AI is used "to include the last, that is, the weakest and most needy brothers and sisters, is the measure that reveals our humanity"[213] . This wisdom can illuminate and guide a human-centered use of such technology, which as such can help to promote the common good, to care for the "common home," to advance the search for truth, to support integral human development, to foster solidarity and human fraternity, and then to lead humanity to its ultimate goal: happy and full communion with God.[214] .

117. From the perspective of wisdom, believers will be able to act as responsible agents capable of using this technology to promote an authentic vision of the human person and society.[215] , starting from an understanding of technological progress as part of God's plan for creation: an activity that humanity is called to order towards the Paschal Mystery of Jesus Christ, in the constant search for Truth and Goodness.

The Supreme Pontiff Francis, in the Audience granted on January 14, 2025 to the undersigned Prefects and Secretaries of the Dicastery for the Doctrine of the Faith and of the Dicastery for Culture and Education, has approved the present Note and has ordered the publication

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

Victor Manuel Card. Fernandez Prefect	José Card. Tolentino of Mendonça Prefect
Bishop Armando Matteo Secretary for the Doctrinal Section	HE Bishop Paul Tighe Secretary for the Culture Section

Ex Audientia Die 14.01.2025
Franciscus

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[1] *Catechism of the Catholic Church*, no. 378. See also Vatican Ecumenical Council II, Cons. past *Gaudium et spes* (December 7, 1965), n. 34: *AAS* 58 (1966), 1052-1053.

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

[3] Cf. Francisco, *Message for the 53rd World Day of Social Communications* (January 24, 2024): *L'Osservatore Romano,* January 24, 2024, 8.

[4] Cf. *Catechism of the Catholic Church*, no. 2293; Vat. Ecum. Conc. II, Cons. past *Gaudium et spes* (December 7, 1965), n. 35: *AAS* 58 (1966), 1053.

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

[6] Cf. Francisco, *Message for the 57th World Day of Peace* (January 1, 2024), nn. 2-3: *L'Osservatore Romano,* December 14, 2023, 2.

[7] The terms used in this document to describe AI outputs or processes are used figuratively to illustrate how AI works and are not intended to attribute human characteristics to AI.

[8] Cf. Francisco, *Speech to the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (June 14, 2024): *L'Osservatore Romano,* June 14, 2024, 3; Id., *Message*

for the 57th World Day of Peace (January 1, 2024), n. 2:_L'Osservatore Romano,_ December 14, 2023, 2.

[9] In these lines, we can see the main positions of the "transumanists" and the "postumanists". _transhumanists_ They claim that technological progress will allow human beings to surpass their own biological limits and improve physical and cognitive abilities. _posthumanists_, for their part, affirm that such progress will end up altering human identity in such a way that men will no longer be able to be considered truly "human." Both positions are based on a fundamentally negative perception of corporeality, which is seen more as an obstacle than as an integral part of human identity, which is also called to participate in the full realization of the person. This negative vision contrasts with a correct understanding of human dignity. While supporting authentic scientific progress, the Church affirms that this dignity is based on the "person as an inseparable unity" of body and soul, and therefore "also inherent in his body, which in its own way participates in the human person's being the image of God" (Dicastery for the Doctrine of the Faith, Decree 1999/1999). _Infinite Dignitas_ [April 8, 2024], n. 18).

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

[11] Cf. AM Turing, «Computing Machinery and Intelligence», _Mind_ 59 (1950) 443-460.

[12] If one attributes "thought" to machines, one must specify that one is referring to computational procedures, not critical thinking. Similarly, if one believes that such devices can operate according to logical thinking, one should specify that this is limited to computational logic. By contrast, by its very nature, human thought is characterized by being a creative process capable of going beyond the limits of logic.

[13] On the fundamental role of language in the formation of understanding, cf. M. Heidegger, _About Humanism_, Klostermann Frankfurt am Main, 1949 (esp. tr. _Letter on Humanism_, Alianza publishing, Madrid 2000).

[14] For more information on these anthropological and theological foundations, see the AI   Research Group of the Center for Digital Culture of the Dicastery for Culture and Education, _Encountering Artificial Intelligence: Ethical and Anthropological Investigations_, (Theological Investigations of Artificial Intelligence, 1), edited by MJ Gaudet, N. Herzfeld, P. Scherz, JJ Wales, Pickwick, Eugene 2024, 43-144.

[15] Aristotle, _Metaphysics_, I.1, 980a21.

[16] Augustine of Hippo, _De Genesi ad Litteram libri duodecim_, III, 20, 30:_PL_ 34, 292: "Man is made in the image of God in relation to the faculty by which he is superior to animals devoid of reason. Now this faculty is reason or mind or intelligence or whatever other name is given to this faculty"; Id., _Arrays in_

Psalms, 54, 3: *PL* 36, 629: «Considering, then, all the things that man possesses, he comes to the conclusion that he is distinguished from animals in proportion as he possesses intelligence.» This is also confirmed by Saint Thomas, who affirms that «man is the most perfect of all terrestrial beings endowed with movement. And his proper natural operation is intellection,» through which man abstracts from things and «receives in the mind the intelligibles in act» (Thomas Aquinas, 36, 629). *Summa Against Gentiles* 2.76).

[17] Cf. Second Vat. Ecum. Conc., Cons. past *Gaudium et spes* (December 7, 1965), n. 15: *AAS* 58 (1966), 1036.

[18] Thomas 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 some elements of the classical and medieval distinction between these two modes of thought, cf. D. Kahneman, *Thinking, Fast and Slow*, New York 2011 (tr. esp. *Thinking fast, thinking slow*, Debolsillo, Madrid 2014).

[19] Thomas 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, Decl. *Infinite Dignitas* (April 8, 2024), no. 9; Francisco, Cart. enc. *Brothers all* (October 3, 2020), n. 213: *AAS* 112 (2020), 1045: «Intelligence can then scrutinize the reality of things, through reflection, experience and dialogue, to recognize in that reality that 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* (December 3, 2007), n. 4: *AAS* 100 (2008), 491-492.

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

[24] In fact, the Bible "generally considers the human being as a being who exists in a body and is unthinkable outside it" (Pontifical Biblical Commission, *"What is man?" (Ps 8:5). An itinerary of biblical anthropology* [September 30, 2019], n. 19). Cf. *ibid.* nn. 20-21, 43-44, 48.

[25] Vat. Ecum. Conc. II, Cons. past *Gaudium et spes* (December 7, 1965), n. 22: *AAS* 58 (1966), 1042. Congregation for the Doctrine of the Faith, Instr. *Dignitas personae* (September 8, 2008), n. 7: *AAS* 100 (2008), 863: «Christ did not disdain human corporeality, but fully revealed its meaning and value.»

[26] Thomas Aquinas, *Summa Against Gentiles* 2.81.

[27] Vat. Ecum. Conc. II, Cons. past *Gaudium et spes* (December 7, 1965), n. 15: *AAS* 58 (1966), 1036.

[28] Thomas Aquinas, *Summa Theologiae* I, q. 89, a. 1, *resp.*: «Existence separated from the body is not in accordance with its nature [...]. That is why it is united to the body: to exist and act in accordance with its nature».

[29] Vat. Ecum. Conc. II, Cons. past *Gaudium et spes* (December 7, 1965), n. 14: *AAS* 58 (1966), 1035. Cf. Dicastery for the Doctrine of the Faith, Decl. *Infinite Dignitas* (April 8, 2024), n. 18.

[30] International Theological Commission, *Communion and service. The human person created in the image of God* (2004), n. 56. Cf. *Catechism of the Catholic Church*, n. 357.

[31] Cf. Congregation for the Doctrine of the Faith, Instr. *Dignitas personae* (September 8, 2008), nn. 5, 8: *AAS* 100 (2008), 862,863-864; Dicastery for the Doctrine of the Faith, Decl. *Infinite Dignitas* (April 8, 2024), nn. 15, 24, 53-54.

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

[33] Cf. Dicastery for the Doctrine of the Faith, Decl. *Infinite Dignitas* (April 8, 2024), nn. 13, 26-27.

[34] Congregation for the Doctrine of the Faith, Instr. *Donum veritatis* (May 24, 1990), n. 6: *AAS* 82 (1990), 1552. Cf. John Paul II, Cart. enc *True splendor* (August 6, 1993), no. 109: *AAS* 85 (1993), 1219; Pseudo Dionysius Areopagite, *De divinis nominibus,* 7.2: *PG* 3, 868B-C: «Souls also have rational discourse, insofar as they move widely and in circles around the truth of things. [...] But, as a result of the reduction of the many into the One, they can be considered worthy of understandings similar to those of the angels, to the extent that it is possible and attainable by souls.»

[35] John Paul II, Bishop of *Faith and ratio* (September 14, 1998), n. 3: *AAS* 91 (1999), 7.

[36] Vat. Ecum. Conc. II, Cons. past *Gaudium et spes* (December 7, 1965), n. 15: *AAS* 58 (1966), 1036.

[37] John Paul II, Bishop of *Faith and ratio* (September 14, 1998), n. 42: *AAS* 91 (1999), 38. Cf. Francisco, Cart. enc *Brothers all* (October 3, 2020), n. 208: *AAS* 112 (2020), 1043. «Human intelligence can go beyond the conveniences of the moment and grasp some truths that do not change, that were true before us and will always be true. By investigating human nature, reason discovers values   that are universal, because they derive from it»; *ibid.*, n. 184: *AAS* 112 (2020), 1034.

[38] Cf. B. Pascal, *You thought*, n. 267 (ed. Brunschvicg): «The last step of reason is to recognize that there are an infinity of things that surpass it» (tr. esp. *Thoughts*, Espasa Calpe, Madrid 1940).

[39] Vat. Ecum. Conc. II, Cons. past *Gaudium et spes* (December 7, 1965), n. 15: *AAS* 58 (1966), 1036. Cf. Congregation for the Doctrine of the Faith, *Doctrinal note on some aspects of evangelization* (December 3, 2007), n. 4: *AAS* 100 (2008), 491- 492.

[40] Semantic capacity allows human beings to grasp the content of a message expressed in any form of communication, in a way that is linked to its material or empirical structure (such as computer code) and, at the same time, transcends it. In this case, intelligence becomes a wisdom that "allows us to see things with the eyes of God, to understand the links, situations, events and to discover their meaning" (Francis, *Message for the 53rd World Day of Social Communications* [January 24, 2024]: *The Osservatore Romano*, January 24, 2024, 8). Creativity allows us to produce new content or ideas, offering above all an original point of view on reality. Both capacities presuppose a personal subjectivity to be fully realized.

[41] Second Ecumenical Council, Vatican II, Dec. *Dignitatis humanoe* (December 7, 1965), n. 3: *AAS* 58 (1966), 931.

[42] Charity "is much more than subjective sentimentality, if it is linked to a commitment to the truth, [...]. Precisely its relationship with the truth facilitates the universality of charity and thus prevents it from being "relegated to a narrow and private sphere of relationships" [...] openness to the truth protects charity from a false faith that is left without "its human and universal horizon"" (Francis, Encyclical Letter) *Brothers all* [October 3, 2020], n. 184: *AAS* 112 (2020), 1034). Internal citations have been taken from Benedict XVI, Encyclical Cart. *Caritas in veritate* (June 29, 2009), nn. 3-4: *AAS* 101 (2009), 642-643.

[43] Cf. International Theological Commission, *Communion and service. The human person created in the image of God* (2004), n. 7.

[44] John Paul II, Encyclical *Faith and ratio* (September 14, 1998), n. 13: *AAS* 91 (1999), 15. Cf. Congregation for the Doctrine of the Faith, *Doctrinal note on some aspects of evangelization* (December 3, 2007), n. 4: *AAS* 100 (2008), 491-492.

[45] John Paul II, Encyclical *Faith and ratio* (September 14, 1998), n. 13: *AAS* 91 (1999), 15.

[46] Bonaventure, II *Sent.*, d. I, p. 2, a. 2, q. 1, cit. in *Catechism of the Catholic Church*, n. 293. Cf. *ibid.*, n. 294.

[47] Cf. *Catechism of the Catholic Church*, nn. 295, 299, 302. Bonaventure compares the universe to "a book, in which the creative Trinity shines, is represented and is read" (Bonaventure, *Breviloquium,* 2.12.1), the same Trinity that grants existence to all things. «Every creature in the world is for us like a book, an image and a mirror» (Alano de Lila, *Of the incarnation of Christ*: *PL* 210, 579a).

[48] Cf. Francisco, Cart. enc. *Praise yes'* (May 24, 2015), n. 67: *AAS* 107 (2015), 874; John Paul II, Encyclical Cart. *Laborem exercens* (September 14, 1981), n. 6: *AAS* 73 (1981), 589-592; Vat. Ecum. Conc. II, Cons. past *Gaudium et spes* (December 7, 1965), nn. 33-34: *AAS* 58 (1966), 1052-1053 ; International Theological Commission, *Communion and service. The human person created in the image of God* (2004), n. 57: «Human beings occupy a unique place in the universe, according to the divine plan: they have the privilege of participating in the divine government of visible creation. [...] Since man's position as ruler is in fact a participation in the divine government of creation, we will speak of it here as a form of service».

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

[50] Cf. Second Vat. Ecum. Conc., Cons. past *Gaudium et spes* (December 7, 1965), nn. 33-34: *AAS* 58 (1966), 1052-1053). This idea is also found in the creation narrative, where God leads the creatures to Adam «to see what name he would give them. And every living being would bear the name that Adam would give it» (*Gene* 2,19), an action that demonstrates the active participation of human intelligence in the management of God's creation. Cf. John Chrysostom, *Homiliae in Genesis*, 14,17-21: *PG* 53, 116-117.

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

[52] Cf. *ibid.,* n. 302.

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

[54] Cf. Francis, Ap. Exhort. *Evangelii gaudium* (November 24, 2013), n. 236: *AAS* 105 (2013), 1115; Id., *Address to the participants in the meeting of chaplains and those responsible for university pastoral care promoted by the Dicastery for Culture and Education* (November 24, 2023): *The Osservatore Romano*, November 24, 2023, 7.

[55] Cf. JH Newman, *The Idea of a University*, Speech 5.1, Basil Montagu Pickering, London 1873₃, 99-100 (tr. esp. *The idea of the university*, Encuentro Editions, Madrid 2014); Francisco, *Address to the academic communities of the Roman universities and pontifical institutions* (February 25, 2023): *AAS* 115 (2023), 316.

[56] Francisco, *Speech to representatives of the National Confederation of Crafts and Small and Medium-sized Enterprises (CNA)* (November 15, 2024): *The Osservatore Romano*, November 15, 2024, 8.

[57] Cf. Francis, Ap. Exhort. *Dear Amazon* (February 2, 2020), n. 41: *AAS* 112 (2020), 246; Id., Cart. enc. *Praise yes'* (May 24, 2015), n. 146: *AAS* 107 (2015), 906.

[58] Francisco, Cart. enc. *Praise yes'* (May 24, 2015), n. 47: *AAS* 107 (2015), 864. Cf. Id., Cart. enc *Dilexit us* (October 24, 2024), nn. 17-24: *The Osservatore Romano*, 24 of

October 2024, 5; Id., Cart. enc*Brothers all* (October 3, 2020), nn. 47-50:*AAS*112 (2020), 985-987.

[59] Francisco, Cart. enc.*Dilexit us* (October 24, 2024), n. 20:*L'Osservatore Romano,* October 24, 2024, 5.

[60] P. Claudel,*Conversation with Jean Racine*, Gallimard, Paris 1956, 32. «Let the intelligence and the will be at its service [of the heart] by feeling and tasting the truths rather than wanting to dominate them as some sciences tend to do», Francisco, Cart. enc. *Dilexit us* (October 24, 2024), n. 13:*The Osservatore Romano*, October 24, 2024, 5.

[61] Dante Alighieri,*Paradise*, Song XXX.

[62] Cf. Second Vat. Ecum. Conc., Decl.*Dignitatis humanoe* (December 7, 1965), n. 3:*AAS*58 (1966), 931«The supreme norm of human life is the divine law itself, eternal, objective and universal, by which God orders, directs and governs the world and the ways of the human community according to the plan of his wisdom and love. God makes man a sharer in this his law, so that man, by the gentle disposition of divine Providence, may come to know more and more of the immutable truth»; Id., Pastoral Const.*Gaudium et spes* (December 7, 1965), n. 16: *AAS*58 (1966), 1037.

[63] Cf. Vat. Ecum. Conc. I, Const. dogm.*Of the Sons*(April 24, 1870), chap. 4,*DH*3016.

[64] Francisco, Cart. enc.*Praise yes'* (May 24, 2015), n. 110:*AAS*107 (2015), 892.

[65] Francisco, Cart. enc.*Praise yes'* (May 24, 2015), n. 110:*AAS*107 (2015), 891. Cf. Id., Cart. enc.*Brothers all* (October 3, 2020), n. 204:*AAS*112 (2020), 1042.

[66] In the human being, God "has imprinted his image and likeness (cf.*Gn*1, 26), conferring on him an incomparable dignity, [...]. In fact, apart from the rights which man acquires by his own work, there are other rights which do not come from any work done by him, but from his essential dignity as a person» (John Paul II, Encyclical Letter. *Centesimus annus* [May 1, 1991], n. 11:*AAS*83 [1991], 807). Cf. Francisco,*Speech to the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (June 14, 2024):*The Osservatore Romano*June 14, 2024, 3-4.

[67] Cf. Dicastery for the Doctrine of the Faith, Decl.*Infinite Dignitas* (April 8, 2024), nn. 8-9; Congregation for the Doctrine of the Faith, Instr.*Dignitas personae* (September 8, 2008), n. 22.

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

[69] Francisco,*Message for the 53rd World Day of Social Communications* (January 24, 2024):*The Osservatore Romano*, January 24, 2024, 8.

[70] In this sense, the expression "artificial intelligence" should be understood as a technical term for the relevant technology, remembering that the expression is also used to designate the field of study and not just its applications.

[71] Cf. Second Vat. Ecum. Conc., Cons. past *Gaudium et spes* (December 7, 1965), nn. 34-35:*AAS*58 (1966), 1052-1053; John Paul II, Encyclical Letter.*Centesimus annus* (May 1, 1991), n. 51:*AAS*83 (1991), 856-857.

[72] As an example, see the encouragement of scientific exploration in Albertus Magnus,*From Mineralibus*, II, 2, 1, and the appreciation for the mechanical arts in Hugo de San Victor,*Didascalicon*, I, 9. These authors, belonging to a long list of ecclesiastics committed to scientific research and technical innovation, have shown that "faith and science can be united in charity if science is placed at the service of the men and women of our time, and is not distorted to harm or even destroy them" (Francis,*Address to the participants of the II Meeting promoted by the Vatican Museums in memory of Georges Lemaître* [June 20,

[2024]:*The Osservatore Romano*, June 20, 2024, 8). Cf. Second Vat. Ecum. Conc., Cons. past *Gaudium et spes* (December 7, 1965), n. 36:*AAS*58 (1966), 1053-1054; John Paul II, Encyclical Letter.*Faith and ratio* (September 14, 1998), nn. 2, 106:*AAS*91 (1999), 6-7.86-87.

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

[74] Cf. Second Vat. Ecum. Conc., Cons. past*Gaudium et spes* (December 7, 1965), n. 34:*AAS*58 (1966), 1053.

[75] Cf.*ibid* ., n. 35:*AAS*58 (1966), 1053.

[76] Francisco, Cart. enc.*Praise yes'*(May 24, 2015), n. 102:*AAS*107 (2015), 888.

[77] Cf. Francisco, Cart. enc*Praise yes'*(May 24, 2015), n. 105:*AAS*107 (2015), 889; Id., Cart. enc.*Brothers all* (October 3, 2020), n. 27:*AAS*112 (2020), 978; Benedict XVI, Encyclical Cart. *Caritas in veritate* (June 29, 2009), n. 23:*AAS*101 (2009), 657-658.

[78] Cf. Dicastery for the Doctrine of the Faith, Decl.*Infinite Dignitas* (April 8, 2024), nn. 38-39, 47; Congregation for the Doctrine of the Faith, Instr.*Dignitas personae* (September 8, 2008), *passim*.

[79] Vat. Ecum. Conc. II, Cons. past*Gaudium et spes* (December 7, 1965), n. 35:*AAS* 58 (1966), 1053. Cf.*Catechism of the Catholic Church*, n. 2293.

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

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

[82] Vat. Ecum. Conc. II, Cons. past*Gaudium et spes* (December 7, 1965), n. 16:*AAS* 58 (1966), 1037. Cf.*Catechism of the Catholic Church,*n. 1776.

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

[84] Cf.*ibid.*, nn. 1779-1781. Pope Francis also encourages the efforts of all to ensure that "technology is centred on the human being, is based on ethical principles during the design of the project and has good as its purpose" (Francis,*Speech to participants in the "Minerva Dialogues"* [March 27, 2023]:*AAS*115 [2023], 463).

[85] Cf. Francisco, Cart. enc.*Brothers all* (October 3, 2020), n. 166:*AAS*112 (2020), 1026-1027; Id.,*Address to the participants in the Plenary Assembly of the Pontifical Academy for Life* (February 28, 2020):*AAS*112 (2020), 308. On the role of the human capacity to act in determining the particular end (*Zweck*) that every technological application complies with the light of an objective (*Ziel*) precedent, see F. Dessauer,*Streit on the technology*, Freiburg i. Br., 1956, 144.

[86] Francisco,*Speech to the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (June 14, 2024):*The Osservatore Romano*, June 14, 2024, 4: «Technology is born with a purpose and, in its impact on human society, it always represents a form of order in social relations and a disposition of power, which enables someone to perform certain actions, preventing others from doing so. This dimension of power that is constitutive of technology always includes, in a more or less explicit way, the worldview of the person who has created or developed it.»

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

[88] Cf. Francisco,*Speech to the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (June 14, 2024):*The Osservatore Romano*, June 14, 2024, 3-4.

[89] Francisco,*Speech to participants in the "Minerva Dialogues"* (March 27, 2023):*AAS*115 (2023), 464. Cf. Id., Cart. enc.*Brothers all* (October 3, 2020), nn. 212-213:*AAS*112 (2020), 1044-1045.

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

[91] Francisco,*Speech to the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (June 14, 2024):*The Osservatore Romano*, June 14, 2024, 2: «Faced with the wonders of machines, which seem to know how to choose independently, we must

"We must be very clear that it is always up to human beings to make the decision, even in the dramatic and urgent tones with which it sometimes presents itself in our lives. We would condemn humanity to a hopeless future if we took away from people the ability to decide for themselves and their lives, condemning them to depend on the choices of machines."

[92] *Ibid* .

[93] In this document, the term "*bias*» (systematic error, bias) refers to the *algorithmic bias* (*algorithmic bias*, which occurs when a computer system produces systematic and constant errors that can unintentionally discriminate against certain groups of people), and not to the "bias vector" or "bias vector". *bias*» (*bias vector*) in neural networks (which collects the parameters used to adjust the outputs of the network's "neurons" during the training process in order to better fit the data).

[94] Cf. Francisco, *Speech to participants in the "Minerva Dialogues"* (March 27, 2023): *AAS* 115 (2023), 464, where the Holy Father noted a growing consensus so that "development processes respect values   such as inclusion, transparency, security, equity, privacy and responsibility" and welcomed "the efforts of international organizations to regulate these technologies in such a way as to promote authentic progress, that is, to contribute to leaving a better world and an integrally higher quality of life."

[95] Francisco, *Speech to a delegation of the Max Planck Society* (February 23, 2023): *The Osservatore Romano*, February 23, 2023, 8.

[96] Vat. Ecum. Conc. II, Cons. past *Gaudium et spes* (December 7, 1965), n. 26: *AAS* 58 (1966), 1046-1047.

[97] Francisco, *Speech to participants in a seminar on "The common good in the digital age"* (September 27, 2019): *AAS* 111 (2019), 1571.

[98] Cf. Francisco, *Message for the 53rd World Day of Social Communications* (January 24, 2024): *The Osservatore Romano*, 24 January 2024, 8. For further discussion of the ethical issues raised by AI from a Catholic Christian perspective, see the 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), edited by MJ Gaudet, N. Herzfeld, P. Scherz, JJ Wales, Pickwick, Eugene (OR – USA) 2024, 147-253.

[99] On the importance of dialogue in a pluralistic society, oriented toward a "solid and stable social ethic," see Francis, Encyclical Letter. *Brothers all* (October 3, 2020), nn. 211-214: *AAS* 112 (2020), 1044-1045.

[100] Francisco, *Message for the 57th World Day of Peace* (January 1, 2024), n. 2: *The Osservatore Romano*, December 14, 2023, 2.

[101] Francisco, *Message for the 57th World Day of Peace* (January 1, 2024), n. 2: *L'Osservatore Romano,* December 14, 2023, 3. Cf. Vat. Ecum. Conc. II, Cons. past *Gaudium et spes* (December 7, 1965), n. 26: *AAS* 58 (1966), 1046-1047.

[102] Cf. Francisco, Cart. enc. *Praise yes'* (May 24, 2015), n. 112: *AAS* 107 (2015), 892-893.

[103] Francisco, *Speech to participants in the "Minerva Dialogues"* (March 27, 2023): *AAS* 115 (2023), 464.

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

[105] Francisco, Exhort. ap. post-synodal *Christ alive* (March 25, 2019), n. 89: *AAS* 111 (2019), 414-414, which cites the *Final document of the XV Ordinary General Assembly of the Synod of Bishops* (October 27, 2018), n. 24: *AAS* 110 (2018), 1593. Cf. Benedict XVI, *Address to the participants in the international congress on natural moral law promoted by the Pontifical Lateran University* (February 12, 2017): *AAS* 99 (2007), 245.

[106] Cf. Francisco, Cart. enc. *Praise yes'* (24 May 2015), nn. 105-114: *AAS* 107 (2015), 889-893; Id., Exhort. ap. *Laudate Deum* (October 4, 2023), nn. 20-33: *AAS* 115 (2023), 1047-1050.

[107] Francisco, Cart. enc. *Praise yes'* (May 24, 2015), n. 105: *AAS* 107 (2015), 889. Cf. Id., Exhort. ap. *Laudate Deum* (October 4, 2023), nn. 20-21: *AAS* 115 (2023), 1047.

[108] Cf. Francisco, *Address to the participants in the Plenary Assembly of the Pontifical Academy for Life* (February 28, 2020): *AAS* 112 (2020), 308-309.

[109] Francisco, *Message for the 57th World Day of Peace* (January 1, 2024), n. 2: *L'Osservatore Romano,* December 14, 2023, 2.

[110] Francisco, Cart. enc. *Praise yes'* (24 May 2015), n. 112: *AAS* 107 (2015), 892.

[111] Cf. Francisco, Cart. enc. *Brothers all* (October 3, 2020), nn. 101, 103, 111, 115, 167: *AAS* 112 (2020), 1004-1005.1007-1009.1027.

[112] Vat. Ecum. Conc. II, Cons. past *Gaudium et spes* (December 7, 1965), n. 26: *AAS* 58 (1966), 1046-1047. Cf. Leo XIII, Cart. enc. *Rerum novarum* (May 15, 1891), n. 35: *Acta Leonis XIII*, 11 (1892), 123.

[113] Vat. Ecum. Conc. II, Cons. past *Gaudium et spes* (December 7, 1965), n. 12: *AAS* 58 (1966), 1034.

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

[115] Second Ecumenical Council, Vatican II, Dec. *Dignitatis humanoe* (December 7, 1965), n. 3: *AAS* 58 (1966), 931. Cf. Francisco, Cart. enc. *Brothers all* (October 3, 2020), n. 50: *AAS* 112 (2020), 986-987.

[116] Francisco, Cart. enc. *Brothers all* (October 3, 2020), n. 50: *AAS* 112 (2020), 986-987.

[117] Francisco, Cart. enc. *Praise yes'* (May 24, 2015), n. 47: *AAS* 107 (2015), 865. Cf. Id., Exhort. ap. post-synodal *Christ alive* (March 25, 2019), nos. 88-89: *AAS* 111 (2019), 413-414.

[118] Cf. Francisco, Cart. enc. *Evangelii gaudium* (November 24, 2013), n. 88: *AAS* 105 (2013), 1057.

[119] Francisco, Cart. enc. *Brothers all* (October 3, 2020), n. 47: *AAS* 112 (2020), 985.

[120] Cf. Francisco, *Speech to the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (June 14, 2024): *The Osservatore Romano*, June 14, 2024, 2.

[121] Cf. Francisco, Cart. enc. *Brothers all* (October 3, 2020), n. 50: *AAS* 112 (2020), 986-987.

[122] Cf. E. Stein, *On the problem of integration*, Buchdruckerei des Waisenhauses, Halle 1917 (esp. tr. *On the problem of empathy*, Trotta Editorial, Madrid 1985).

[123] Francis, Ap. Exhort. *Evangelii gaudium* (November 24, 2013), n. 88: *AAS* 105 (2013), 1057: "Just as some would like a purely spiritual Christ, without flesh and without a cross, so too some would like interpersonal relationships mediated only by sophisticated devices, by screens and systems that can be turned on and off at will. In the meantime, the Gospel always invites us to take the risk of encountering the face of the other, with his physical presence that challenges us, with his pain and his complaints, with his joy that spreads in constant hand-to-hand contact. True faith in the Son of God made flesh is inseparable from the gift of self"; Cf. Second Vatican Ecumenical Council, Pastoral Cons. *Gaudium et spes* (December 7, 1965), n. 24: *AAS* 58 (1966), 1044-1045.

[124] Cf. Dicastery for the Doctrine of the Faith, Decl. *Infinite Dignitas* (April 8, 2024), n. 1.

[125] Cf. Francisco, *Speech to participants in a seminar on "The common good in the digital age"* (September 27, 2019): *AAS* 111 (2019), 1570; Id., Cart. enc. *Praise yes'* (24 May 2015), nn. 18, 124-129: *AAS* 107 (2015), 854.897-899.

[126] Francisco, *Message for the 57th World Day of Peace* (January 1, 2024), n. 5: *The Osservatore Romano*, December 14, 2023, 3.

[127] Francis, Ap. Exhort. *Evangelii gaudium* (November 24, 2013), n. 209: *AAS* 105 (2013), 1107.

[128] Francisco, *Speech to the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (June 14, 2024): *The Osservatore Romano*, June 14, 2024, 4. For Pope Francis' teaching on AI in relation to the "technocratic paradigm," cf. Id., Encyclical Cart. *Praise yes'* (24 May 2015), nn. 106-114: *AAS* 107 (2015), 889-893.

[129] Vat. Ecum. Conc. II, Cons. past *Gaudium et spes* (December 7, 1965), n. 26: *AAS* 58 (1966), 1046-1047, as cited in *Catechism of the Catholic Church*, no. 1912. Cf. John XXIII, Cart. enc. *Mater et magistra* (May 15, 1961), n. 219: *AAS* 53 (1961), 453.

[130] Vat. Ecum. Conc. II, Cons. past *Gaudium et spes* (December 7, 1965), n. 64: *AAS* 58 (1966), 1086.

[131] Francisco, Cart. enc. *Brothers all* (October 3, 2020), n. 162: *AAS* 112 (2020), 1025; John Paul II, Encyclical Cart. *Laborem exercens* (September 14, 1981), n. 6: *AAS* 73 (1981), 591: "work is 'in function of man' and not man 'in function of work'. This conclusion leads precisely to the recognition of the pre-eminence of the subjective meaning of work over the objective meaning."

[132] Francisco, Cart. enc. *Praise yes'* (May 24, 2015), n. 128: *AAS* 107 (2015), 898. Cf. Id., Exhort. ap. *Amoris Laetitia* , (March 19, 2016), n. 24: *AAS* 108 (2016), 319-320.

[133] Francisco, *Message for the 57th World Day of Peace* (January 1, 2024), n. 5: *The Osservatore Romano*, December 14, 2023, 3.

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

[135] *Ibid* .

[136] Francisco, Cart. enc. *Brothers all* (October 3, 2020), n. 67: *AAS* 112 (2020), 993; cited in Id., *Message for the XXXI World Day of the Sick* (February 11, 2023) *The Osservatore Romano* , January 10, 2023, 8.

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

[138] Francisco,*Address to the Diplomatic Corps accredited to the Holy See* (January 11, 2016):*AAS*108 (2016), 120. Cf. Id., Cart. enc.*Brothers all* (October 3, 2020), n. 18:*AAS*112 (2020), 975; Id.,*Message for the XXXII World Day of the Sick* (February 11, 2024):*The Osservatore Romano*, January 13, 2024, 12.

[139] Cf. Francisco,*Speech to participants in the "Minerva Dialogues"* (March 27, 2023):*AAS* 115 (2023), 465; Id.,*Speech to the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (June 14, 2024):*The Osservatore Romano*, June 14, 2024, 2.

[140] Cf. Francisco, Cart. enc.*Praise yes'* (24 May 2015), nn. 105, 107:*AAS*107 (2015), 889-890; Id., Cart. enc.*Brothers all* (October 3, 2020), nn. 18-21:*AAS*112 (2020), 975-976; Id.,*Speech to participants in the "Minerva Dialogues"* (March 27, 2023):*AAS*115 (2023), 465.

[141] Francisco,*Address to the participants of a meeting organised by the Charity and Health Commission of the Italian Episcopal Conference* (February 10, 2017):*AAS*109 (2017), 243. Cf.*ibid.*, 242-243: «If there is a sector where the throwaway culture clearly shows its painful consequences, it is the health sector. When the sick person is not at the centre and their dignity is not considered, attitudes are engendered that can even lead to speculation about the misfortunes of others. And this is very serious! [...] The business model in the health sector, if adopted indiscriminately [...] runs the risk of producing human waste».

[142] Francisco,*Message for the 57th World Day of Peace* (January 1, 2024), n. 2:*The Osservatore Romano*, December 14, 2023, 3.

[143] Second Ecumenical Council, Vatican II, Dec.*Gravissimum educationis* (October 28, 1965), n. 1:*AAS*58 (1966), 729.

[144] Congregation for Catholic Education,*Instruction for the application of the distance learning modality in ecclesiastical universities/faculties*(2021), 2. Cf. Second Vat. Ecum. Conc., Decl.*Gravissimum educationis* (October 28, 1965), n. 1:*AAS*58 (1966), 729; Francisco, *Message for the 49th World Day of Peace* (January 1, 2016), n. 6:*AAS*108 (2016), 57-58.

[145] Francisco,*Speech to the delegation of the "Global Researchers Advancing Catholic Education Project"*(April 20, 2022):*AAS*114 (2022), 580.

[146] "If [contemporary man] listens to those who teach, it is because they bear witness" Paul VI, Apostolic Exhortation.*Evangelii nuntiandi* (December 8, 1975), n. 41:*AAS*68 (1976), 31, citing Id.,*Address to the members of the "Council of Laity"*(October 2, 1974), in*AAS*66 (1974), 568.

[147] JH Newman,*The Idea of a University Defined and Illustrated*, Speech 6.1, London 1873₃, 125-126.

[148] Cf. Francisco,*Meeting with the students of the Barbarigo School of Padova on the 100th anniversary of its foundation*(March 23, 2019):*The Osservatore Romano*, March 24, 2019, 8; Id., *Address to the academic communities of the Roman universities and pontifical institutions* (February 25, 2023):*AAS*115 (2023), 316.

[149] Francis, Ap. Exhort.*Christ alive* (March 25, 2019), n. 86:*AAS*111 (2019), 413, citing the XV Ordinary General Assembly of the Synod of Bishops,*Final document* (October 27, 2018), n. 21:*AAS*110 (2018), 1592.

[150] JH Newman,*The Idea of a University Defined and Illustrated*, Discourse 7.6, London 1873$_3$, 167.

[151] Cf. Francis, Ap. Exhort.*Christ alive* (March 25, 2019), n. 88:*AAS*111 (2019), 413.

[152] In a 2023 strategic document on the use of generative AI in education and research, UNESCO notes: "One of the key questions [in the use of generative AI (GenAI) in education and research] is whether humans can hand over basic levels of thinking and skill-acquisition processes to AI and focus on higher-order thinking skills based on AI-generated output. Writing, for example, is typically associated with structuring thought. 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,*Guide to the use of generative AI in education and research*[2023], 37-38). The German-American philosopher Hannah Arendt had already foreseen this possibility in her 1959 book,*The human condition*, and has put us on our guard: "If it were to happen that knowledge (in the modern sense of*know-how*) and thought were to separate definitively, we would become powerless slaves, not so much of the machines as of our*know-how*» (H. Arendt,*The Human Condition*, Chicago 2018$_2$, 3 ; tr. esp.,*The human condition*, Paidós Editions, Barcelona 2009, 16).

[153] Francis, Ap. Exhort.*Amoris Laetitia* (March 19, 2016), n. 262:*AAS*108 (2016), 417.

[154] Francisco,*Message for the 57th World Day of Peace* (January 1, 2024), n. 2: *L'Osservatore Romano,*December 14, 2023, 3. Cf. Id., Cart. enc.*Praise yes'* (May 24, 2015), n. 167:*AAS*107 (2015), 914.

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

[156] Francis, Ap. Const.*Veritatis gaudium* (January 29, 2018), 4c:*AAS*110 (2018), 9-10.

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

[158] For example, it could help people to access the "many means of progressing in the knowledge of the truth" collected in philosophical works (John Paul II, Encyclical Letter. *Faith and ratio* [September 14, 1998], n. 3:*AAS*91 [1999], 7. 3); Cf.*ibid.*, n. 4:*AAS*91 (1999), 7-8).

[159] Dicastery for the Doctrine of the Faith, Decl.*Infinite Dignitas* (April 8, 2024), n. 43. Cf. *ibid.*, nn. 61-62.

[160] Francisco,*Message for the 53rd World Day of Social Communications* (January 24, 2024):*The Osservatore Romano*, January 24, 2024, 8.

[161] Vat. Ecum. Conc. II, Cons. past*Gaudium et spes* (December 7, 1965), n. 25:*AAS* 58 (1966), 1053. Cf. Francisco, Cart. enc.*Brothers all* (October 3, 2020),*passim*:*AAS* 112 (2020), 969-1074.

[162] Cf. Francisco, Exhort. ap. post-synodal*Christ alive* (March 25, 2019), n. 89:*AAS*111 (2019), 414; John Paul II, Cart. enc.*Faith and ratio* (September 14, 1998), n. 25:*AAS*91 (1999), 25-26: "No one can remain sincerely indifferent to the truth of his knowledge. [...] This is the lesson of St. Augustine when he writes: "I have found many who wanted to deceive, but none who wanted to be deceived," which Augustine of Hippo quotes, *Confessionum libri tredecim*, 10, 23, 33:*PL*27, 793.

[163] Dicastery for the Doctrine of the Faith, Decl.*Infinite Dignitas* (April 8, 2024), n. 62.

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

[165] Cf. Dicastery for Communication,*Towards a full presence: Pastoral reflection on interaction in social networks* (May 28, 2023), no. 41; Second Vatican Ecumenical Council, Decree*Inter miraculous* (December 4, 1963), nn. 4, 8-12:*AAS*56 (1964), 146.148-149.

[166] Cf. Dicastery for the Doctrine of the Faith, Decl.*Infinite Dignitas* (April 8, 2024), nn. 1, 6, 16, 24.

[167] Vat. Ecum. Conc. II, Cons. past*Gaudium et spes* (December 7, 1965), n. 26:*AAS*58 (1966), 1046. Cf. León XIII, Cart. enc.*Rerum novarum* (May 15, 1891), n. 40:*Acta Leonis XIII* , 11 (1892), 127: "No one may violate with impunity the dignity of man, which God himself regards with great respect," quoted in John Paul II, Encyclical Letter.*Centesimus annus* (May 1, 1991), n. 9:*AAS*83 (1991), 804.

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

[169] Cf. Mission of the Permanent Observer of the Holy See to the Nations,*Statement by the Holy See during the thematic discussion on other disarmament and international security measures*(October 24, 2022): "Respect for dignity

"Human security in the digital space requires States to also respect the right to privacy, protecting citizens from intrusive surveillance and allowing them to defend their personal data from unauthorized access."

[170] Francisco, Cart. enc. *Brothers all* (October 3, 2020), n. 42: *AAS* 112 (2020), 984.

[171] Francisco, *Message for the 57th World Day of Peace* (January 1, 2024), n. 2: *The Osservatore Romano*, December 14, 2023, 3.

[172] Francisco, *Speech to participants in the "Minerva Dialogues"* (March 27, 2023): *AAS* 115 (2023), 465.

[173] He *Interim report* The 2023 United Nations Advisory Body on AI has identified a list of "initial expectations for AI to help combat climate change" (United Nations Advisory Body on AI, *Interim Report: Governing AI for Humanity,* December 2023, 3). The paper noted that "along with predictive systems that can transform data into insights and insights into actions, AI-based tools can help develop new strategies and investments to reduce emissions, influence new private sector investments in the *net zero*, protect biodiversity and create a broad base of social resilience," (*ibid.*).

[174] It is a network of physical servers spread across the globe that allows users to store, process and manage their data remotely, without the need for storage space or computing power on local devices.

[175] Francisco, Cart. enc. *Praise yes'* (May 24, 2015), n. 9: *AAS* 107 (2015), 850.

[176] *Ibid* ., n. 106: *AAS* 107 (2015), 890.

[177] *Ibid* ., n. 60: *AAS* 107 (2015), 870.

[178] *Ibid* ., nn. 3, 13: *AAS* 107 (2015), 848.852.

[179] Augustine of Hippo, *From the City of God*, 19.13.1: *PL* 41, 460.

[180] Cf. Second Vat. Ecum. Conc., Cons. past *Gaudium et spes* (December 7, 1965), nn. 77-82: *AAS* 58 (1966), 1100-1107; Francisco, Cart. enc. *Brothers all* (October 3, 2020), nn. 256-262: *AAS* 112 (2020), 1060-1063; Dicastery for the Doctrine OF THE FAITH, Dec. *Infinite Dignitas* (April 8, 2024), nn. 38-39; *Catechism of the Catholic Church*, nn. 2302-2317.

[181] Vat. Ecum. Conc. II, Cons. past *Gaudium et spes* (December 7, 1965), n. 78: *AAS* 58 (1966), 1101.

[182] Francisco, *Message for the 57th World Day of Peace* (January 1, 2024), n. 6: *The Osservatore Romano*, December 14, 2023, 3.

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

[184] Cf. Second Vat. Ecum. Conc., Cons. past *Gaudium et spes* (December 7, 1965), nn. 80-81: *AAS* 58 (1966), 11013-1105.

[185] Francisco, *Message for the 57th World Day of Peace* (January 1, 2024), n. 6: *The Osservatore Romano*, December 14, 2023, 3; Cf. Id., *Speech to the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (June 14, 2024): *The Osservatore Romano*, June 14, 2024, 2: "We need to ensure and protect a space of meaningful human control over the election process used by artificial intelligence programs. Human dignity itself is at stake."

[186] Francisco, *Speech to the G7 Session on Artificial Intelligence in Borgo Egnazia (Puglia)* (June 14, 2024): *L'Osservatore Romano,* June 14, 2024, 2; Cf. Mission of the Permanent Observer of the Holy See to the United Nations, *Statement by the Holy See to Working Group II on Emerging Technologies at the UN Disarmament Commission* (3 April 2024): "The development and use of lethal autonomous weapons systems lacking adequate human control would raise fundamental ethical issues, as such systems can never be morally responsible subjects capable of complying with international humanitarian law."

[187] Francisco, Cart. enc. *Brothers all* (October 3, 2020),), n. 258: *AAS* 112 (2020), 1061. Cf. Vat. Ecum. Conc. II, Cons. past *Gaudium et spes* (December 7, 1965), n. 80: *AAS* 58 (1966), 1103-1104.

[188] Vat. Ecum. Conc. II, Cons. past *Gaudium et spes* (December 7, 1965), n. 80: *AAS* 58 (1966), 1103-1104.

[189] Cf. Francisco, *Message for the 57th World Day of Peace* (January 1, 2024), n.6: *L'Osservatore Romano,* December 14, 2023, 3: «We cannot ignore the possibility that sophisticated weapons may end up in the wrong hands, facilitating, for example, terrorist attacks or actions aimed at destabilizing legitimate government institutions. In short, the last thing the world really needs is for new technologies to contribute to the unjust development of the arms market and trade, promoting the madness of war.»

[190] John Paul II, *Act of offering to the Blessed Virgin Mary on the occasion of the Jubilee of Bishops* (October 8, 2000), n. 3: *Teachings*, XXIII/2 (200), 565.

[191] Francisco, Cart. enc. *Praise yes'* (May 24, 2015), n. 79: *AAS* 107 (2015), 878.

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

[193] Cf. Dicastery for the Doctrine of the Faith, Decl.*Infinite Dignitas* (April 8, 2024), nn. 38-39.

[194] Cf. Augustine of Hippo,*Confessionum libri tredecim*, 1.1.1:*PL*32, 661.

[195] Cf. John Paul II, Encyclical Letter.*Requested King Socialis* (December 30, 1987), n. 28:*AAS*80 (1988), 548: «Today it is better understood that the*mere accumulation*of goods and services [...] is not enough to provide human happiness. Nor, therefore, is the availability of multiple*real benefits,*The advances made in recent times by science and technology, including information technology, bring about liberation from any form of slavery. On the contrary [...] if this entire considerable mass of resources and potentials, placed at the disposal of man, is not governed by a*moral objective*and for an orientation that is directed to the true good of the human race, it easily turns against it to oppress it. Cf.*ibid.*, nn. 29, 37:*AAS*80 (1988), 550-551.563-564.

[196] Vat. Ecum. Conc. II, Cons. past*Gaudium et spes* (December 7, 1965), n. 14:*AAS* 58 (1966), 1036.

[197] Francisco, Cart. enc.*Dilexit no s*(October 24, 2024), n. 18:*The Osservatore Romano*, October 24, 2024, 6.

[198] *Ibid* .,n. 27:*The Osservatore Romano*, October 24, 2024, 5.

[199] *Ibid* .,n. 25:*The Osservatore Romano*, October 24, 2024, 5-6.

[200] Francisco, Cart. enc.*Praise yes'*(May 24, 2015), n. 105:*AAS*107 (2015), 889. Cf. R. Guardini, *The end of the new time*, Wurzburg, 1965$_9$, 87 ff. (tr. esp.*The twilight of the modern age*, Editorial Cristiandad, Madrid 1981).

[201] Vat. Ecum. Conc. II, Cons. past*Gaudium et spes* (December 7, 1965), n. 34:*AAS* 58 (1966), 1053.

[202] John Paul II, Encyclical*Redemptor of men* (May 4, 1979), n. 15:*AAS*71 (1979), 287-288.

[203] N. Berdjaev, "Man and Machine", in C. Mitcham – R. Mackey (eds.),*Philosophy and Technology: Readings in the Philosophical Problems of Technology*, The Free Press, New York 1983$_2$, 212-213.

[204] *Ibid.,*210.

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

[206] Cf. Francisco,*Meeting with the students of the Barbarigo School of Padova on the 100th anniversary of its foundation*(March 23, 2019):*The Osservatore Romano*, March 24, 2019, 8;

Id.,*Address to the academic communities of the Roman universities and pontifical institutions* (February 25, 2023): *AAS* 115 (2023), 316.

[207] Francisco, Cart. enc. *Praise yes'* (May 24, 2015), n. 112: *AAS* 107 (2015), 892-893.

[208] Cf. Bonaventure, *Collations in Hexaemeron,* XIX, 3; Cf. Francisco, Cart. enc. *Brothers all* (October 3, 2020), n. 50: *AAS* 112 (2020), 986: "The overwhelming accumulation of information that overwhelms us does not mean more wisdom. Wisdom is not manufactured by anxious searches on the Internet, nor is it a sum of information whose veracity is not assured. In this way, one does not mature in the encounter with the truth."

[209] Francisco, *Message for the 53rd World Day of Social Communications* (January 24, 2024): *The Osservatore Romano*, January 24, 2024, 8.

[210] *Ibid* .

[211] *Ibid* .

[212] Francis, Ap. Exhort. *Be glad and rejoice* (March 19, 2018), n. 37: *AAS* 110 (2018), 1121.

[213] Francisco, *Message for the 57th World Day of Peace* (January 1, 2024), n. 2: *The Osservatore Romano*, December 14, 2023, 3. Cf. Id., Cart. enc. *Praise yes'* (May 24, 2015), n. 112: *AAS* 107 (2015), 892-893; Id., Exhort. ap. *Be glad and rejoice* (March 19, 2018), n. 46: *AAS* 110 (2018), 1123-1124.

[214] Cf. Francisco, Cart. enc. *Praise yes'* (May 24, 2015), n. 112: *AAS* 107 (2015), 892-893.

[215] Cf. Francisco, *Speech to participants in a seminar on "The common good in the digital age"* (September 27, 2019): *AAS* 111 (2019), 1570-1571.