



**Frankfurt Study Day
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QUESTIONS OF MEANING IN TIMES OF KI AND QUANTUM TECHNOLOGY

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Table of contents

<u>A. PREAMBLE</u>	3
<u>B. ETHICAL COMPASS FOR THE USE OF AI AND OTHER TECHNOLOGY</u>	4
1. BASIC ETHICAL QUESTIONS REGARDING THE USE OF AI	4
2. CONCLUSIO	6
<u>C. HOW CAN QUANTUM TECHNOLOGY SERVE THE HUMAN FAMILY?</u>	6
1. THE BASICS OF QUANTUM TECHNOLOGY	6
2. POTENTIAL AREAS OF APPLICATION FOR THE HUMAN COMMUNITY	6
3. CHALLENGES AND ETHICAL ISSUES	8
4. QUANTUM TECHNOLOGY AS AN OPPORTUNITY FOR THE COMMUNITY	8
5. CONCLUSIO	9
<u>D. THOUGHTS ON THE VIEW OF THE WORLD AND PEOPLE IN TECHNOLOGIZED TIMES</u>	9
1. THE VIEW OF THE WORLD AND MAN IN TECHNICAL MODERNITY	10
2. THE EFFECTS OF MECHANIZATION ON PEOPLE'S SELF-IMAGE	11
3. A CHRISTIAN PERSPECTIVE ON THE TECHNOLOGIZED WORLD	11
4. CONCLUSIONS: A RESPONSIBLE APPROACH TO TECHNOLOGY	12
5. CONCLUSIO	13
<u>D. PERSPECTIVES ON COMMUNITY AND THE ECONOMY FROM THE PERSPECTIVE OF CATHOLIC SOCIAL TEACHING</u>	13
1. CATHOLIC SOCIAL TEACHING AS AN ETHICAL FRAMEWORK FOR TECHNOLOGICAL PROGRESS	14
2. AI AND QUANTUM TECHNOLOGY AS A CHALLENGE FOR COMMUNITY AND SOCIETY	15
3. THE ECONOMY BETWEEN PROFIT MAXIMIZATION AND ETHICAL RESPONSIBILITY	16
4. CONCLUSION: CATHOLIC SOCIAL TEACHING AS AN ETHICAL COMPASS FOR THE TECHNOLOGIZED FUTURE	17
<u>E. CONCLUSION</u>	17
1. VIEW OF THE WORLD AND PEOPLE IN THE TECHNOLOGICAL AGE	17
2. SOCIETY AND THE ECONOMY BETWEEN PROGRESS AND RESPONSIBILITY	18
3. ETHICAL GUARD RAILS: RESPONSIBILITY FOR A HUMANE TECHNOLOGY DESIGN	18
4. THE ROLE OF THE CHURCH AND SOCIETY IN THE DIGITAL FUTURE	19
5. CONCLUSION: TECHNOLOGY AS A TOOL, NOT AN END IN ITSELF	19



A. Preamble

Today's world is characterized by increasing tensions between states, social groups and ideological camps. In fact, inequality in the world is worsening, divisions in society are increasing and wealth imbalances are growing. While these developments, with serious consequences for questions of social justice and social inclusion, can be traced back to material and financial factors and can be substantiated by numerous statistics, the social consequences of new technological developments are threatening a new disruptive force at a rapid pace, the consequences of which have so far been insufficiently researched from a socio-ethical perspective.

Through algorithmic distortions, digital divisions and the concentration of power in the hands of a few actors, the new technologies can further reinforce the existing polarizations of social division. While AI (artificial intelligence) certainly does not live up to its name and is neither artificial nor intelligent¹, its algorithms, which are created on the basis of existing data stored in the system, are already being used extensively in society, science and business. AI systems such as chatbots, automated decision-making and machine learning are having a profound impact on labor markets, education, the press, science, politics and governance. And quantum technology is expected to have even more dramatic developments and effects, because completely new, creative applications and immense computing power not only open up fascinating possibilities, but also jeopardize existing encryption technologies and facilitate attacks on previously secure systems.

Rapid progress not only raises technical questions, but also profound existential, anthropological and ethical ones: How does the use of these technologies influence human autonomy and decision-making? What consequences does this have for our image of humanity and our culture of coexistence? What values should technological developments be based on? How can these technologies be used to promote the common good? How can these technologies even be used to reduce polarization and rebuild global governance in the service to the human family that Pope Francis has repeatedly emphasized?

¹ Cf. Pope Francis in "Address to the Participants of the International Conference of the Centesimus Annus Pro Pontifice Foundation", Vatican, June 22, 2024



B. Ethical compass for the use of AI and other technology

AI is already being used in many areas of life. Further developments of such technology are not yet foreseeable. There is a consensus in the field of technology ethics that such use must also be critically evaluated from an ethical point of view and therefore also from the perspective of Catholic social teaching, with the question of its service to the human family. We have now taken up this thread of discussion from our last Frankfurt Study Day and pursued it further. The impetus for this came from the recently published Vatican document “Anti-qua et nova” of January 14, 2025.²

Following on from this, **Prof. Dr. Dr. Elmar Nass** presented key cornerstones for the responsible use of technologies for discussion in his lecture at the Frankfurt Study Day.

1. Basic ethical questions regarding the use of AI

Evaluating user acceptance is not enough for an ethical assessment of the use of AI. There is a risk of subtle manipulation by commercial lobbyists. What is needed is an examination of acceptability. In other words, to what extent is the difference between humans and machines clear in terms of dignity through the use of humanoid technology? What are the consequences for coexistence, freedom and responsibility? For this discussion, some fundamental ethical issues with regard to people and the serviceability of technology can be focused on from a Christian perspective:

Human dignity

Doctors who blindly trust AI in diagnosis and treatment are becoming henchmen of technology. They reduce their patients to a billable data set. But people are more than that. This also applies to the military: people attacked by autonomous weapons in war become the plaything of cold computing operations. In such a world, it comes as no surprise that humanoid robots should be granted rights, duties and dignity if they are allowed to marry, etc. Humanoid machines are not people and have no corresponding dignity. Human rights and duties only apply to humans, not machines. Even cyborgs with AI brains are not human beings. The underlying optimization logic of enhancement devalues human performance, as well as people with flaws. It subjects worthiness to a calculation of usefulness. The human orientation towards moral norms, as taught by Christianity and the Enlightenment, then takes a back seat to utilitarian logic. And trans-humanist utopias give the illusion of infinite life. Holograms with generated voices of the deceased trivialize finiteness and suppress a conscious confrontation with grief and death.

² Dicastery for the Doctrine of the Faith / Dicastery for Culture and Education: Antiqua et Nova. Note on the relationship between artificial intelligence and human intelligence, dated 14.1.2025, https://www.vatican.va/roman_curia/congregations/cfaith/documents/rc_dcf_doc_20250128_antiqua-et-nova_ge.html (26.2.2025)



Living together

When real and virtual life become blurred, the inhibition thresholds for violence and the motivation for social virtues decrease. The suppression of finiteness reduces the motivation to value old and dying people. The use of social robotics in care brings with it a possible deception. Humanized robotics can give the impression of humanoid rationality and genuine feelings. This could replace heartless and soulless human relationships. Such robots could also be used as trusting spies. If humans become something like “friends” with anthropomorphic robots and trust them, this can be exploited. All of this needs to be taken into account, especially when used with people with cognitive impairments. AI as a colleague or even a boss would dehumanize corporate culture and turn people into puppets of technology. If honest encounters are replaced by programmed empathy or “love”, this creates a culture of lies, ambush, mistrust and coldness. Generative AI produces unfeeling empty words instead of genuine relationships. The “social” aspect of care, for example, must not be delegated to AI. Because this is an essential part of the profession of good human care.

Freedom and democracy

In the long term, mathematically calculated evidence could render political debates, critical journalism, free courts, pluralism and religious diversity superfluous. It would thus become the engine of social division. AI would present itself as the voice of moral science that makes no mistakes. A deceptive temptation. It suggests unambiguity in political, legal and ethical issues. Creativity in art, language, science and education is also lost. There is a danger that people will adapt to the language and logic of AI and thus reduce their essence. This could result in society being brought into line with soulless AI logic. And authoritarian powers could make use of it. Let's take a look at Chi-na. There we see what happens when a ruling elite provides evidence and uses AI to re-educate the people into new humans. Generative AI produces uniformity instead of something truly new.

Responsibility

AI cannot be the bearer of responsibility. This is because it presupposes freedom, reason and morality, which it does not possess. AI-generated decisions, forecasts and diagnoses are subject to the risk of manipulated data. This makes them susceptible to fake news. Programmed morality is not a solution. It is merely a syncretic calculation game in which there are no feelings such as shame, guilt, compassion, empathy or love. And certainly no well-founded values. And so its decisions are also not comprehensible.

Man and transcendence

When social robots replace pastoral care, the problem of human substitution is exacerbated. When people adapt to AI logic, this is already problematic. It becomes absurd when the concept of God adapts to the AI calculation. God is much greater than all calculation. Furthermore, the use of ChatGPT for preaching is problematic if generated texts are simply adopted. The preacher's or teacher's engagement with God is lost and there is no credible preaching.



2. Conclusio

We see: Technology that blurs the boundaries of human dignity, makes us believe we have feelings and even conversations with the dead, destroys our awareness of meaning, humanity, boundaries, freedom, responsibility and transcendence. Dignity, freedom, democracy and religion are at stake. Humans should use generative AI, but must not allow themselves to be enslaved by it. It must remain an instrument whose results are evaluated and used by humans. These fundamental guidelines are also an ethical compass for other new technologies such as quantum technology, which we addressed at the study day.

C. How can quantum technology serve the human family?

Quantum technology is one of the most groundbreaking scientific developments of our time. It promises not only enormous progress in computer science, but also revolutionary applications in medicine, logistics, cryptography and many other areas. However, this disruptive technology also raises ethical, security-related and social questions that should be considered in the context of Catholic social teaching.

The Frankfurt Study Day of the Centesimus Annus Pro Pontifice Foundation therefore also addressed the potential of quantum technology and its significance for the common good and thus the human family. The discussion was shaped, among other things, by the contribution of **Prof. Dr. Florian Neukart** (Chief Product Officer of Terra Quantum AG).

1. The basics of quantum technology

Quantum technology is based on the principles of quantum mechanics, which make it possible to process information in a completely new way. A major difference to classical information technology is that quantum bits (qubits) can not only assume the values 0 and 1, but are in a superposition, which means that they represent several states simultaneously.

The first quantum revolution gave rise to technologies such as the laser and the transistor. The second quantum revolution goes even further and makes it possible to manipulate individual particles in a targeted manner. This makes it possible to create completely new applications with exponentially increasing potentialities that could not be realized in classical computer systems.

2. Potential areas of application for the human community

Quantum technology offers a wide range of possibilities for overcoming social challenges. It could make a significant contribution to the common good in the following areas in particular:



Medical applications and healthcare

- **More precise diagnostics:** By simulating molecules, new drugs can be developed more quickly and personalized therapies improved.
- **Early detection of diseases:** Quantum sensors can be used to detect diseases such as cancer or neurodegenerative disorders at very early stages.
- **Optimization of medical supply chains:** Quantum computing can solve complex logistics problems in the healthcare sector, e.g. the rapid provision of medicines in crisis areas.

Cryptography and cybersecurity

- **Quantum cryptography** enables absolutely secure communication, as it is based on physical laws and cannot be decrypted using conventional computing power.
- **Protection against cyber attacks:** Today's encryption is vulnerable to quantum computing, which is why it is necessary to develop quantum-safe encryption methods.
- **Secure digital identities:** New methods enable forgery-proof identification to prevent identity theft.

Sustainability and climate protection

- **Optimizing energy consumption:** Quantum computers can analyse complex energy systems and make them more efficient.
- **More precise climate models:** Thanks to the enormous computing power, weather and climate models can be improved in order to develop more targeted measures to combat climate change.
- **Materials research for sustainable products:** New materials researched using quantum computing can accelerate the production of environmentally friendly technologies.

Logistics and mobility

- **Optimization of transport systems:** Quantum algorithms help to make supply chains more efficient and reduce CO₂ emissions through optimized route planning.
- **Autonomous driving:** Advances in pattern recognition and sensor data processing could enable safer autonomous vehicles.

Artificial intelligence and quantum AI

- **Combination of AI and quantum technology:** Machine learning can be accelerated by quantum computing, which is particularly beneficial for the optimization of complex systems.
- **Ethical questions regarding AI development:** How can AI be prevented from making ethically questionable decisions using quantum algorithms?



3. Challenges and ethical issues

Although quantum technology offers immense benefits for mankind, there are also risks and ethical issues to consider.

Technological feasibility vs. ethical justifiability

Not everything that is technically possible should be implemented. The following challenges in particular need to be considered:

- **Who controls the technology?** - Is it democratically regulated or monopolized by a few corporations and governments?
- **How will access to quantum technology be regulated?** - Will it contribute to the division of society (through varying availability or also through its potential for fake information) or will it enable fair participation?

Risk of manipulation and misuse

- **Quantum computers could crack existing encryption systems**, which could lead to a global threat to sensitive data.
- **The technology could be misused for surveillance purposes or autonomous weapons systems.**

How can Christian values be integrated into quantum technology?

Christian social teaching also provides a valuable basis for the ethical use of quantum technology. We recalled the fundamentals of this with regard to AI and they also apply here:

- **Focus on people:** Technology must remain understandable and controllable and serve the well-being of people. It must not create new forms of oppression and must not relativize human dignity.
- **Solidarity and justice:** Access to quantum technology must be fair so as not to further increase social inequalities.
- **Sustainability and responsibility for creation:** Technological advances should be in harmony with the preservation of creation and used responsibly in the long term.

4. Quantum technology as an opportunity for the community

Quantum technology has the potential to advance humanity in many ways. It can help to cure diseases, combat climate change, open up new economic opportunities and make our digital lives safer.



At the same time, the risks must not be underestimated. Ethical discourse is crucial to ensure that quantum technology benefits all of humanity and not just the interests of a few.

The Church can and should play an active role in this debate by advocating for **value-based development and ethical standards in technology research**. The future of quantum technology must not be determined solely by economic or geopolitical interests, but must be oriented towards the common good.

5. Conclusio

Quantum technology offers enormous opportunities for medicine, climate protection, cyber security and logistics by solving complex problems faster and more precisely. At the same time, it harbors considerable risks, for example through the concentration of power, social inequality and potential misuse such as surveillance or cyber attacks. Catholic social teaching demands that technological innovations serve the common good and thus the human family and not be subordinated to economic interests alone. Prudent ethical regulation is necessary to ensure democratic control, social participation and sustainable use. As a moral authority, the church can provide impetus for responsible use. Christians should set a good example here in the development, use and discussion and make the multidimensionality of human nature visible (in addition to reason and spirit, also soul, transcendence and conscience). If we succeed in shaping the use of technology in the spirit of personality, solidarity and social justice, it can make a positive contribution to the human community.

D. Thoughts on the view of the world and people in technologized times

The rapid development of digitalization, AI and quantum technology is changing the way we understand the world and ourselves. While technology makes our lives easier and opens up new possibilities, it also poses the deepest questions about human nature: What does it mean to be human? What place do humans occupy in a world that is increasingly characterized by algorithms, autonomous systems and machine decisions?

The Frankfurt Study Day of the Centessimus Annus Pro Pontifice (CAPP) Foundation therefore also addressed these existential questions. In particular, **Prof. Dr. Patrick Becker**, Professor of Fundamental Theology and Religious Studies in Erfurt, shed light on how the view of the world and humanity is fundamentally changing under the influence of technological developments.



1. The view of the world and man in technical modernity

The belief in constant progress was a central idea of the Enlightenment. Man as a rational individual came more into focus, accompanied by a plea for religious tolerance.

Man as a machine?

Since the Enlightenment and industrialization, man has often been compared to a machine. Modern science and technology have reinforced this comparison:

- **Neuroscience and AI research** postulate that human thought is based on neuronal processes that can be imitated.
- **Reductionist approaches** reduce consciousness, emotions and free will to biochemical processes or mathematical algorithms.
- **Questions of self-optimization:** Technical enhancements such as brain implants, prostheses or genetic interventions are leading to a new definition of what it means to be human.

The loss of the metaphysical dimension

A technologized society tends to view people primarily in functional terms. Spirituality, transcendence and questions of meaning are increasingly receding into the background:

- The focus is shifting to the **economic usability** of the individual.
- The human being is increasingly viewed as **a system that can be optimized** (e.g. bio-hacking, transhumanism).
- **Values and virtues such as dignity, love or compassion** cannot be quantified and are therefore beyond technological rationality.

Technological progress and the dissolution of human boundaries

Technical innovations open up new perspectives for people, but also harbor dangers:

- **Immortality fantasies:** Projects for digital immortality or the freezing of bodies demonstrate the desire to overcome death.
- **Artificial intelligence as a decision-maker:** AI systems are already influencing political, economic and social decisions today.
- **The illusion of complete control:** Technology gives the impression that humans can calculate and optimize everything - an idea that is at odds with human limitations.



2. The effects of mechanization on people's self-image

Here we briefly highlight the question of what such mechanization does to people and society.

What distinguishes humans from machines?

A central topic of the discussion was the question of whether machines could at some point replace humans or even be superior to them. The following distinguishing features were highlighted:

- **Consciousness and self-reflection:** AI can recognize patterns, but cannot have conscious experiences.
- **Freedom and responsibility:** Humans make decisions not only on the basis of probabilities, but also on a moral basis.
- **Relatability and empathy:** While machines can simulate social interactions, real interpersonal relationships are unique.

The impact of technology on identity and community

- **Danger of alienation:** People are increasingly spending time in virtual spaces, which can lead to social isolation.
- **Fragmentation of the world view:** Algorithms control information flows, radicalizing opinions and dividing societies.
- **Loss of ego autonomy:** decisions are increasingly influenced by AI-supported systems without people being aware of it.

Social challenges posed by the digital transformation

- **The role of education:** People must learn to critically scrutinize technological developments and think for themselves.
- - **Moral relativism through AI:** machines “learn” from data, not from ethical principles - how can moral values be integrated into algorithms?
- - **Responsibility for future generations:** Technological progress must not lead to a pure optimization of the now, but must take long-term effects into account.

3. A Christian perspective on the technologized world

The Catholic faith offers proven and well-founded answers to these influences of technology and the resulting social challenges. New technologies such as AI ultimately lead to the repetition of many questions that were already critical in the age of industrialization.



Man as the image of God

From a Christian perspective, man is not just a biological being, but an individual created by God with inalienable dignity. This perspective in turn reinforces important guidelines for dealing with technology from a new perspective:

- **Technology as a tool, not an end in itself:** technologies should support people, but not disempower them.
- **Human dignity is inviolable:** an algorithm cannot decide on a person's life or rights.
- **Ethics of responsibility instead of feasibility logic:** Not everything that is technically possible is morally justifiable.

The social dimension of human beings

- Humans are **relational beings** - digital communication must not replace genuine exchange.
- **Solidarity and justice** must also apply in the digital world (e.g. access to technology, digital participation).
- **Time for silence and spirituality:** In an accelerated world, people consciously need technology-free spaces for reflection and inner contemplation.

Artificial intelligence as a challenge for Christianity

- **The boundary between man and machine:** AI must not be seen as a “new deity”.
- **Ethical programming of algorithms:** How can Christian values be incorporated into the development of AI?
- **The image of man in theology and technology:** While theology views man as a creature with free will, technology often defines him as a system that can be optimized.

4. Conclusions: A responsible approach to technology

The discussion showed that the technologized world brings with it both great opportunities and profound challenges. The following points are crucial for a future worth living:

1. **Technology must serve people** and not replace them.
2. **Education and ethics are essential** to promote a conscious and critical approach to digital developments
3. **The Christian view of humanity emphasizes dignity, freedom and responsibility** - these values must also be taken into account in technological development.
4. **The church must play an active role** in the ethical discourse in order to promote a socially just and human-centered design of technology.
5. **Silence and reflection must not be lost** - people need spaces for rest and reflection in a world of constant digital availability.



5. Conclusio

Increasing mechanization through artificial intelligence and quantum technology is not only changing our society, but also poses fundamental questions about our image of humanity.

While people are increasingly viewed as a system that can be optimized from a purely technical perspective, there is a risk that their dignity will be reduced to data, calculations and efficiency. Catholic social teaching, on the other hand, emphasizes the inalienable dignity of human beings, their autonomy and their ability to make moral decisions. In his encyclical *Laudato Si*, Pope Francis explicitly warns against such an idolization of technology. Technology must therefore not replace or incapacitate people, but should serve them. At the same time, the unchecked advance of AI and other technologies in all areas of life is leading to challenges such as social division, ethical decision-making dilemmas and the danger of AI replacing human responsibility. The church must be a voice in these debates, advocating an image of humanity that goes beyond mere functionality. It is crucial that technology complements humanity, not defines it. Only in this way will humans remain the creators of their future in responsibility before God and not the object of technological processes.

D. Perspectives on community and the economy from the perspective of Catholic social teaching

The rapid development of artificial intelligence (AI) and quantum technology is changing the way societies function, how economic processes work, how people understand their dignity and how people interact with each other. These technological upheavals bring with them immense opportunities, but also profound ethical and social challenges.

In this context, **Catholic social teaching** offers guidance that focuses on people and is based on principles such as **personality, the common good, solidarity and subsidiarity**.

Against this backdrop, key questions were discussed at the **Frankfurt Study Day of the Centesimus Annus Pro Pontifice Foundation**

- How can AI and quantum technology contribute to the good of society and the economy?
- What dangers do these technologies entail?
- How can Catholic social teaching help to set ethical guidelines for the technological future?

The answers to these questions are crucial for shaping a just, humane and sustainable economic and social order.



1. Catholic social teaching as an ethical framework for technological progress

Catholic social teaching sees man as a free being who lives in community with others and bears responsibility before God, for himself and for society. Technological developments must therefore be considered under the following aspects:

Personality - the human being at the center

Technology is a tool, not an end in itself. **It must serve people, not the other way around.** At a time when machines are increasingly making decisions and controlling processes, it is crucial that humans remain in control.

- **AI must not undermine human freedom, conscience and decision-making.**
- Quantum technology should be **used for the common good**, e.g. in medicine, environmental technology and social innovation.
- **The question of human dignity** is being posed anew by new technologies: May an AI decide on life and death (e.g. in medicine or autonomous weapons)?

Common good - technology for all, not just the few

While AI and quantum technology create enormous economic benefits, there is a risk that **only a few corporations and countries will benefit from these developments** while large sections of society are left behind.

- The digital divide between developed and less developed countries continues to grow.
- Technological developments must be **sustainable, socially just and inclusive.**
- Education is a central key: **people must be prepared for the digitalized and automated future.**

Solidarity - protecting the weakest in a technologized society

- AI and automation could make millions of jobs redundant. How can society show solidarity with those affected?
- Digitalization must not lead to **social isolation** - interpersonal relationships must not be replaced by algorithms.
- Companies must be aware of their **social responsibility** and must not put profit before the well-being of people.



Subsidiarity - preserving human decision-making authority

Catholic social teaching emphasizes that decisions should be made **at the lowest, most human level** wherever possible.

- AI must not serve as an “omniscient” authority with supposed evidence that relieves people of their responsibility.
- Societies must ensure that the **human factor is retained in the world of work, in political decisions and in social processes.**

2. AI and quantum technology as a challenge for community and society

In order to counteract social division caused by digital systems such as AI, we need Christian answers to key ethical questions and a social consensus on the implementation of such ethical frameworks.

Ethical challenges posed by AI

AI is already making automated decisions today, for example when granting loans, in the justice system or in personnel management. The following questions arise in an ethical context:

- **What values govern these systems?**
- **Who bears responsibility for wrong or unjust decisions?**
- **How can AI be prevented from reinforcing social prejudice and discrimination?**

Christian perspective

- Humans must **not be reduced to their data** - they are more than a calculable entity.
- AI must not be allowed to independently make decisions that affect people's lives and dignity.

The danger of social division through digital systems

- **AI-controlled media reinforces echo chambers** and contributes to the polarization of society.
- **Social networks and algorithms** influence opinions and can undermine democratic processes.
- **The digital divide is increasing:** wealthy countries and social groups benefit from new technologies, while poorer classes are left behind.



Solutions from Catholic social teaching

- Promote **critical digital education** for all sections of the population.
- **Transparency in AI development:** people need to understand how algorithms make decisions.
- **Corporate social responsibility:** Technology must be fair and usable for the common good.

3. The economy between profit maximization and ethical responsibility

A definition of the role of business participants that needs to be updated, such as the corporate citizenship of profit-oriented companies, is also finding new relevance through AI.

Technological world of work - curse or blessing?

- **Automation is displacing traditional jobs** - how can new, meaningful activities be created?
- **Human labor is more than a production factor** - it gives identity and meaning.
- **Unconditional basic income vs. work for all** - is a person without work still a person?

Ethical demands

- **Technology must strengthen people in the world of work, not displace them.**
- **Retraining and further training** must be promoted to prepare people for the digital economy.
- **The world of work must preserve social values** instead of just increasing efficiency.

The responsibility of companies

- **Business ethics based on people's responsibility to God, to themselves and to others and to the integrity of creation must be a central component of corporate strategy.**
- Companies must **not only consider profit, but also social and ecological responsibility.**
- **Big data & data protection:** People need to know what happens to their data and how companies use it.



4. Conclusion: Catholic social teaching as an ethical compass for the technologized future

Technological development is **not a law of nature**, but a consequence of human decisions. Catholic social teaching can help **to shape a fairer and more humane economy and society**.

Key demands for ethical digitalization

1. **Technology must serve people - not the other way around**
2. **Social justice must also be upheld in the digital world**
3. **Companies and states bear responsibility for the ethical use of new technologies**
4. **People must not be degraded to a commodity or a number in an algorithm**
5. **Society must consciously decide which technologies are promoted and regulated**
6. **Freedom in political and scientific discourse must be preserved and shaped humanely**

Concluding thought

AI and quantum technology offer great opportunities, but also profound risks. **The question is not whether we use these technologies, but how.** Catholic social teaching calls for an economy and society that **puts people at the center** - a task that is more relevant than ever.

E. Conclusion

The rapid development of **artificial intelligence (AI)** and **quantum technology** is increasingly shaping our understanding of the economy, society and human existence. While these technologies offer immense opportunities for progress and problem-solving, they also raise profound ethical, social and existential questions. The central question is:

How can technological progress be shaped in such a way that it serves people instead of disempowering or replacing them?

1. View of the world and people in the technological age

Digitalization means that people are increasingly viewed in **functional terms** - as a data-driven unit, an optimizable system or a mere resource in economic processes. In a world in which algorithms are increasingly intervening in decision-making processes, there is **a threat of a loss of self-determination and human depth**.



Catholic social teaching counters this with a clear perspective:

- Humans are **more than machines** - they possess consciousness, morality, creativity and the ability to self-reflect.
- AI can optimize processes, but it must not make ethical decisions that affect human life. In the “Antiqua et Nova” note, the Vatican emphasizes that **human intelligence is seen as a gift from God** and that the responsible use of rationality and technical abilities should be at the service of creation.³
- The central question of meaning is therefore: **Who remains master of technology - man or machine?**

2. Society and the economy between progress and responsibility

Both AI and quantum technology have the potential to make the economy and society more efficient, safer and more sustainable. Advances in **medicine, cyber security, environmental technology and logistics** could improve the lives of many people. At the same time, however, there is a risk that technological power will remain concentrated in the hands of a few corporations or states, further deepening social inequalities.

- **Work and the economy:** Automation replaces jobs - what role remains for people in a digitalized world of work?
- **Social justice:** Who benefits from technology? Is a digital divide emerging between those who have access and those who remain excluded?
- **Data and privacy:** To what extent will people become mere “data suppliers” whose information is used or manipulated for profit?

In this context, the Vatican warns against handing over human responsibility to AI and emphasizes the need for careful regulation to prevent the spread of misinformation and the destabilization of society.⁴

3. Ethical guard rails: Responsibility for a humane technology design

Catholic social teaching calls for a clear ethical orientation:

- **Technology must serve people, not the other way around.** Progress must not be motivated solely by economic or power politics.

³ Cf. *ibid.*

⁴ Ludwig Ring-Eifel : “Vatican warns of the dangers of artificial intelligence” in: kath.ch, January 29, 2025



- **Democratic control over AI and quantum technology is essential.** Regulation and ethical guidelines must prevent these technologies from being misused for surveillance, manipulation or military purposes. Pope Francis has repeatedly emphasized that algorithms must not be allowed to determine the fate of people and calls for international regulations based on high ethical standards.⁵
- **Solidarity and the common good must take center stage.** Digitalization must not create a new form of social exclusion, but must benefit all people.

4. The role of the church and society in the digital future

The Church can and should play an active role in the debate on the ethical use of AI and quantum technology. Its mission is **to provide guidance in the area of tension between progress, responsibility, virtue education and ethical values.**

- It must enable people to deal with technology in **a responsible manner instead of passively submitting to it.**
- It can promote social dialog and show meaningful perspectives beyond **a pure logic of feasibility.**
- It should advocate for **a socially just shaping of digital change** so that technological progress does not only benefit an elite.

The “Antiqua et Nova” note emphasizes that the Church promotes progress in science and technology, as this is seen as part of the participation of man and woman with God in perfecting the visible creation.⁶

5. Conclusion: Technology as a tool, not an end in itself

Artificial intelligence and quantum technology can have a significant impact on the future of humanity - **for better or for worse.** The decisive factor will be whether we succeed in finding a balance between technological progress and ethical responsibility.

Humans must **not be reduced to a data-based, predictable entity.** The future must be geared towards shaping technology in such a way that it **preserves human dignity, promotes social justice and respects fundamental ethical values.** This is the only way to create a society in which progress does not mean alienation, but rather an improvement in life for all people.

⁵ “Pope calls for rules for artificial intelligence” in: kathpress.at, January 24, 2025

⁶ Cf. *Antiqua et nova* (note 2).



The document reflects the discussion contributions of the participants of the Frankfurt Study Day of the Centesimus Annus pro Pontifice Foundation - German Section on February 15, 2025, moderated by Prof. Dr. Dr. Elmar Nass, Prorector and Professor of Christian Social Sciences and Social Dialogue, Cologne University of Catholic Theology, his lecture "AI - Ethical Claims, Applications, Evaluations and Compass" and from the keynote speeches by Prof. Dr. Florian Neukart, CPO, Terra Quantum AG, St. Gallen "How can quantum technology serve the human community?" and Prof. Dr. Patrick Becker, Professor of Fundamental Theology and Religious Studies, Kathol. Dr. Florian Neukart, CPO, Terra Quantum AG, St. Gallen "How can quantum technology serve the human community?" and Prof. Dr. Patrick Becker, Professor of Fundamental Theology and Religious Studies, Faculty of Catholic Theology, University of Erfurt "World and human image in technologized times".

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Other participants at the study day were Marcel and Tina Bieniek, Dr. Eleonora Bonacossa, Rainer Dormagen, Iris Kittel, Dr. Christopher Klein, Prof. Dr. Alexander Kracklauer, Volker Lauven, Ingo Ley, Alois Fürst zu Löwenstein, Dr. Stephanie Prinzessin zu Löwenstein, Klaus Optenhövel, Barbara Pung, Sabine Rodeck-Kemper, Mario Rusack-van Rossum, Dr. Ulrich Schürenkrämer, Maria-Theresia Gräfin von Spee, Sylvia Trimborn-Ley, Prof. Dr. Riccardo Wagner and Father Johannes Zabel OP.