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Empowered Parental Responsibility: A Proposed Human-Cyber-Technological Relationship Model from a Christian Ethical Perspective

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Abstract: Recent developments in cyber technologies, particularly in Artificial Intelligence, further speed up the merging of biological, physical, and digital realities. Both developers and users are divided among themselves in terms of the uncertain future these developments lead the human family. Some view it optimistically hoping that it will bring humanity to a higher level of development and well-being. However, many think otherwise given the recent incidents that highlight the pitfalls of these emerging technologies that put personal privacy, among many other things, and even human lives at risk. These ethical issues led many groups and individuals to call for more responsible innovation, development, and use of cyber technologies. This paper is an attempt to contribute to the current discussion regarding these. The paper proposes an *empowered parental responsibility model* as to how humans should effectively and responsibly relate to these cyber technologies, especially with AI. Finally, following the framework presented by Pope Francis in his encyclical Laudato Si' where he calls for ecological conversion from a technocratic paradigm, this paper also calls for a technological conversion towards a more empowered and responsible innovation, development, and use of cyber technologies.

Key Words: Cyber technologies; Human-Cyber Technology Relationships; Empowered Parental Responsibility Model; Laudato Si'; 4IR

INTRODUCTION

Many believe we are already well within the Fourth Industrial Revolution (4IR). Klaus Schwab (2016), the Founder of the World Economic Forum, defines the 4IR as the emergence of information and computer technologies that effectively merge the physical, biological, and digital worlds that affect to a very wide and significant extent of our life in general and in different fields. It even calls for a new definition of life itself and challenges our common notion of what it is to be human. He authored a book on the topic and called upon leaders in all aspects and from different fields to help prepare and brace the people for the impact these emerging technologies would bring. The good news is that we are still at the beginning stages of this 4IR, and we still have the power to turn its direction towards positive human growth and evolution. And so, voices can be heard from various parts of the world and from different experts to learn what the 4IR is and how it would impact life as we know it now and in the future. Among the experts, there were also calls for responsible research and innovation to ensure that these new cyber technologies would be for the

service of humanity and not for humanity to be enslaved by it. Thus, clearer ethical principles are needed in the design and development of these new and emerging cyber technologies.

Emerging Cyber-Technologies and Their Implications on Humans

In the recent past, several Artificial Intelligence (AI) mishaps have been reported. There were cases of algorithmic bias in healthcare that led to discriminatory outcomes (Obermeyer et al, 2019). There were varied incidents of facial recognition errors by police authorities that led to misidentification due to inaccuracies that somehow affected minority groups in the US. There are instances involving autonomous vehicles. The more famous incident was the Uber self-driving car that hit and killed a pedestrian in Arizona, USA. There were also reports on privacy breaches particularly that of a fertility app that leaked out women's health data. Bloomberg also reported some algorithmic trading glitches that caused a massive sell-off in the stock market that resulted in a loss of billions of dollars for investors. There are also issues regarding AI-powered misinformation and deepfakes. These are used to create fake videos and audio recordings that can easily manipulate public opinion. Finally, there is the infamous AI Chatbot failure which provided inaccurate and inappropriate responses.

Saeedi, et al. (2022) reiterated almost all that where mentioned above, albeit focusing on the consumer-impacted AI-related mishaps. They noted that developers of consumer AI applications and products should consider the possible pitfalls of their products and should properly warn their consumers/users of the possible harm it may cause them. They also proposed to apply the security-by-design principles to ensure security for the users (Saeedi, et al., 2022).

These are just some incidents that were reported that involve the application and use of these emerging cyber technologies, particularly AI. Schwab pictures the 4IR to be very positive and for the development of humanity, but, with these scenarios, everything is still in the works. Deducing from these incidents, two questions come to mind: how emerging cyber technologies be further developed and designed in such a way that it will minimize the negative impact on people and the environment? And in these scenarios, who can be ethically responsible? These two questions can be summed up by asking: What is the appropriate relationship between human developers and users with these emerging cyber technologies?

Recognizing that these emerging technologies can be very useful in the advancement of humanity, they also have to be guarded against current technocratic and economic paradigms that could take over these technologies and place the power and control to enrich a few capitalists at the expense of the majority. These paradigms are the technocratic paradigm and the neoliberalist economic paradigm. The technocratic paradigm sees science and technology as the only solution to the current problems in the world. It also tends to dominate economic and political life and it conditions the people in a lifestyle that is technology-driven rather than the other way around. The capitalistic and neoliberalist paradigm leads people towards a solely economic view of life and focuses on profit neglecting the oppressive conditions this paradigm presents to the people. Schwab (2016) recognizes that the 4IR can be beneficial to the human family if people are prioritized and empowered recognizing that these new technologies are created by the people for people. But this might not be enough if we do not have a proper relationship with technology.

The Call for Responsible Development and Design of Emerging Technologies

The incidents involving cyber technology mentioned above are what the advocates for responsible cyber technology research and design are trying to point out. Andrew Maynard (2018) of the University of Arizona's Risk Innovation Lab does not recognize the 4IR as completely sunny and all-bright. He argues that it is true that the 4IR can bring positive change and human progress. However, it also can bring about and develop systems that can negatively affect human life in general. Examples of these are the emerging innovative technologies that can provide a different process of procreation or even the fact that artificially intelligent systems can also populate the world side by side with humans and that technology will eventually replace people at work. He reminds people involved in these emerging technologies to slow down and look at all possible considerations when the life and dignity of human persons could be compromised.

Weyenberg (2016), on the other hand, proposed to amend the 10 Principles of a Good Design proposed by Dieter Ram some 40 years ago. According to Dieter Ram a good design is innovative; makes a product useful; is aesthetic; makes a product understandable, is unobtrusive; is honest; is long-lasting; is thorough down to the last detail; is environmentally friendly; and, is as little design as the possible

This list has been well accepted in designing products for the use of people and it has been effective. However, Weyenberg felt the need to add a new one. He said that in the time of Dieter Ram, the people, the consumers had control over the products. The user has the power to decide which products they will allow to be part of their lives. The user has the power to choose which ones they love the most, and when and to what extent they will use the products. However, Weyenberg noticed that it is not the same today. The control has now shifted to the other side: the product now controls the user. The product designers have successfully done this by taking advantage of the cognitive vulnerabilities of human beings as users. The designers have effectively dictated upon the users to develop certain habits, even down to the biological level of the human person. The designers have successfully manipulated the products in such a way that the users will focus more on the material products and not anymore with real relationships. And finally, he saw that the developers and designers have produced among the users to develop an addictive behavior in the way the users relate to the products. Thus, he proposed an 11th commandment, that is "Good design is ethical design". For this, he meant that "products place the user's interest at the center of its purpose and any effort to influence the user's agency or behavior is in the spirit of their positive well-being and the well-being of those around them" (Weyenberg, 2016).

Maynard (2018) and his Risk Innovation Lab at the University of Arizona and Weyenberg (2016) are also joined by a couple of big organizations with regards to their advocacy on responsible and cautious design of emerging technologies. The European Union formed a team called the ETICA Project to see the ethical considerations of these emerging cyber technologies. Also, the Institute of Electrical and Electronic Engineers (IEEE) has opened a discussion on the ethical issues in designing autonomous and intelligent systems (A/IS). It is entitled Global Initiative for Ethical Considerations in Artificial Intelligence and Autonomous Systems. They are now at the second version of the project but still, they welcome suggestions and discussions. In the project, they have listed some ethical considerations in designing A/IS.

The ETICA Project has already wrapped up and different teams have submitted their respective reports. The team of Ikonen et. al. (2013) was able to trim down emerging technologies from about 100 technologies, 70 examples of uses, and 40 artifacts into 11 major groupings of emerging technologies, some of which are affective computing, ambient intelligence, artificial intelligence, robotics, etc. On the other hand, the team headed by Heersmink (2014) produced the Normative Issues report which discussed the entire process of the project. Using a bibliometric analysis, ethical concepts related to each of these emerging technologies followed by a comprehensive literature review were identified. The group found out that many ethical concepts and issues surround each technology. Some of these issues are even commonly present in some of them. However, the number and details vary greatly. Some of the prominent and recurring ethical issues and concepts are privacy, data protection, intellectual property, security, autonomy, freedom, agency, the possibility of persuasion or coercion, responsibility, liability, the possibility of machine ethics, access, digital divides, power issues, consequences of technology for our view of humans, conceptual issues (e.g. notions of emotions, intelligence), the link between and integration of ethics into law and culturally different perceptions of ethics.

The IEEE (2017), on the other hand, proposed as a jump-off point for further discussions, the following ethical design principles: protecting human rights, prioritizing the well-being of persons, ensuring accountability of designers and operators, making the process transparent, minimizing the risk of misuse. Another strong aspect of these ethical design principles is their attempt to dialogue with other cultures, particularly with the ethical principles of Buddhism, Ubuntu, and Virtue ethics in advocating for responsible research and innovation.

From there, we can see how the morality of creating ethically designed technologies is very much apparent. Van den Hoven et al (2012) proposed that moral values could be drivers of responsible innovation. They proposed a four-stage process of recognizing moral values as an essential element in the development and advancement of these new

technologies. According to them, at the start, moral values are considered irrelevant to innovation, business cases, and economics. But later, one will see moral values as just constraints but not anymore as irrelevant. Then later still, moral values will be the central consideration in the design of innovative technologies. Until one realizes and actively pursues the conditions of taking moral responsibility for these emerging and innovative technologies.

At least two responsible innovative and research design theories follow this line. Friedmann's (2004) Value Sensitive Design Theory and more recently the Humane Design by the Center for Humane Technology spearheaded by Tristan Harris.

Friedmann (2004) argues for the importance of making moral values an intrinsic part of the design process for it to become responsible for innovation and research. It grounds itself on the development of emerging technologies that take into consideration human values in a determined and comprehensive way throughout the design procedures. The theory proposes that designers and developers would have discerned and considered the ethical issues that could already be addressed in the early stage of the development with the hope of preventing harm that might start from these issues.

The Center for Humane Technology's goal is to reverse the increasing digital attention crisis and to realign technology with what is in the best interest of humanity. They focus on the advocacy of designing technology that is accompanied by humane standards, policies, and business models. They propose that emerging technologies should be designed keeping in mind what is most vulnerable among human instincts taking into consideration the protection of the human persons from abuse of the technology. The group behind Humane Design advocates at various levels: among business leaders, among technology designers and developers, among users, and even at the level of legislative policies. Their immediate goal is to bring back the well-being of humanity at the forefront of this development.

In a way of summarizing what has been discussed so far, we can see those emerging technologies, if properly developed and used, can bring positive effects to human life. However, this is still far from reality. We have seen examples wherein these emerging technologies have failed and posed great threats to humanity. Thus, different researchers and groups mentioned above still desire a more secure place for human persons in the coming 4IR. The discussion table is still open and there is still a need for more perspectives in the current dialogue between humanity and technology.

Defining Human-Cyber-Technology Relationship

Michelfelder (2000) recognizes that emerging technologies can make things easier for humanity, but she doubts that the moral conditions should also be changed. However, she argues that the issue is not our life in cyberspace and its espoused emerging cyber technologies but our relationship with cyberspace which is more important and ethically worth considering.

At the dawn of the First Industrial Revolution, Henry David Thoreau wrote in his classic essay Walden in 1884: "We do not ride on the railroads. It rides upon us." As we now enter the 4IR, we can still hear echoes of Thoreau's words: We do not ride on these emerging technologies. These emerging technologies ride upon us. Thoreau simply reminded the people of his time to live simply and be in control rather than being controlled by the emerging industrial revolution.

So how then does one relate with the emerging technology? Regina Rini (2011) after reflecting on the possibility for robots to have their morality, proposed a way to relate with these artificial/intelligent learning systems. She called it parenting. Coming from an anthropomorphic view of robots, she deduced that robots can eventually imitate a human person and even defeat human experts in their respective fields of intelligence but still, robots cannot possess a moral condition based on human norms on their own. She argues that if ever robots have their morality, it must be based on their robot nature, just like human morality is based on human nature. She defined robots as "independent rational agents, deliberately created by other rational agents, sharing a social world with their creators, to whom they will be required to justify themselves" (Rini, 2011). Thus, robots can have their moral nature based on how the "creators" will parent them. Thus, she proposes that "our relation to intelligent machines should be that of parents…the non-biological children of biological parents" (Rini, 2011).

Continuing this line of thought, what could be the responsibilities of humans in "parenting" these emerging technologies? Speaking about human parenting vis-à-vis bioethics, Prusak (2013) classified parental obligations into two, the causal account and the voluntarist account. The causal account refers to the accountability incurred as a consequence of causing a person to exist. In contrast, the voluntary account is incurred by willing assumptions of the obligations of parenting. Technically, the obligation of the procreator carries more weight than those who simply assume the obligations. However, both should bear the responsibility of parenting in any case. Applying these to our relationship with emerging technologies, the designer of these technologies can be considered to have causal accountability while the users of the technology have voluntarist accountability. In any case, both the developer and the user are accountable for the development and use of these emerging cyber technologies.

Empowered Parental Responsibility as a Model for Human-Cyber-Technology Relationship

Given all these, there is a need for the human person to get hold of himself or herself in front of the insurmountable influence cyber technology brings upon them, both as developers and users. There seems to be a need for a framework on how one can relate to the emerging cyber technologies responsibly and proactively, something that would concretize the appeal of Schwab (2106) who calls everyone to "together shape a future that works for all by putting people first, empowering them and constantly reminding ourselves that all of these new technologies are first and foremost tools made by people for people." This paper proposes, following Rini's (2011) suggestion, an *empowered parental responsibility model* of relationship that puts the well-being and welfare of the people first in the development and usage of these emerging cyber technologies.

This kind of relationship is a distinct way of living our lives with cyber technology and within cyberspace. It takes the primacy of the human person over cyber technology more responsibly. The level of responsibility is like that of a human parent to a human child, maintaining a creator-creature relationship. The human person controls these cyber technologies and decides how much they are willing to share their person and invest emotionally in them. It is a proactive way of relating to human-created intelligent systems, a balanced, healthy, and well-reasoned anthropomorphism. Finally, it ensures that cyber technologies are made for the responsible advancement of the human family and not for its detriment.

This type of relationship also responds to the call of other organizations particularly that of IEEE and ETICA Project in ensuring that ethical considerations with regards to the well-being of the people, both users and developers, should be the priority in the design, development, and use of these new technologies. It also reflects the call of The Center for Humane Technology and Weyenberg (2017) to return the power and control of these technologies to the people as opposed to what is happening right now, wherein the people are being used as mere statistics in big data analysis and in a way controlling and manipulating their behavior.

To understand what this *empowered parental responsibility model* of relationship with cyber technology *is not*, we could look at the paradigm that Pope Francis (2015) points us to as the source of all possible misuse of science and technological advancement, including cyber technology: the technocratic paradigm.

The technocratic paradigm is a way of thinking that all solutions to the current problems in the world can be solved by technology and economy. This kind of thinking also refers to the rich few who take control of the technological industry for mere profit neglecting their responsibility to the people. This can be seen at the beginning of this paper concerning the case of Facebook when millions of confidential data were shared and used for political and eventually economic purposes. Another example is the case of Uber and local government units that allow experimental robot cars is also another case wherein Uber could be so in a hurry to put to the streets their experimental driverless cars to the detriment of pedestrians and other drivers.

In *Laudato Si*, Pope Francis (2015) looks at the technocratic paradigm as the source of the moral failure of technology concerning ecology. The extractive mentality, looking only at the profit while completely disregarding its effects on the environment as if they own them is just a small part of this paradigm. Some also consider this as the improper and unethical application of science and

technology at the expense of what is more important, i.e. life not only of the people of the whole planet.

This paradigm can also be behind the quickening of the pace of the whole planet into the 4IR. That is why many groups and institutions are focusing their efforts on preparing the people for the impending impact of this cyber-biological-physical integration. At the same time, some of them started to build sound foundations to put up legislation and define parameters for this unavoidable future to protect the dignity of the human family and the planet which is the home for humans.

The Church's Tradition on Human-Technology Relationship

Pope Paul IV (1967) wrote these powerful words in his encyclical *Populorum Progressio* from paragraph 34, which clearly defines the rightful place of the human person amid technological advancement:

> "It is not sufficient to promote technology to render the world a more humane place in which to live. The mistakes of their predecessors should warn those on the road to development of the dangers to be avoided in this field. Tomorrow's technocracy can beget evils no less redoubtable than those due to the liberalism of yesterday. Economics and technology have no meaning except from man whom they should serve. And man is only truly man in as far as, master of his acts and judge of their worth, he is author of his advancement, in keeping with the nature given to him by his Creator and whose possibilities and exigencies he freely assumes."

Schuurman (2011) considers that the technological world follows the following norms and technical values: effectiveness, "standardization, efficiency, success, safety, reliability, and maximum profit." Thus, Schuurman (2011) concluded that "the first and great commandment of 'technological culture' is, 'Be as effective as is technically possible,' and the second like unto it is, 'Be as efficient as is economically possible." It is important to understand that with this kind of perspective, there is almost no room for consideration of the possible negative effects of these emerging technologies on the human family and to the planet. Thus, it is important to realize that these technologies should be used in the service of the people and the planet and not the other way around. These emerging technologies should be developed and used as tools for human development and not for its demise. In other words, the commandment of love towards neighbor and self, even towards the Creator, should be the primary norm in developing and using these technologies.

Finally, an interesting argument was raised by King (2015) when he pointed out that these technologies are not God's creation but by humans. He based this on *Laudato Si* when Pope Francis (2015) wrote that "science and technology are wonderful products of a God-given human creativity." He compared this to the previous pronouncements of the Catholic Church in *Communio et Progressio* (1971), though speaking about social communications, which says that technological inventions are gifts of God because they bring people towards solidarity and understanding. King (2015) finds it important to regard technology as human-made and not God-made simply because if it is God-made, there are no more questions about its rightness and goodness knowing that all God created is good and right. But given the current experiences of the people with technology, one could see that emerging technologies are not all good and right as they are. Some of these technologies can eventually put the people and the whole of creation at risk. That is why maybe the Church, through Laudato Si, is clarifying that technology is also subjected to morality because it affects the way of life of the people and the whole of creation. Thus, there is a call for a more responsible development and use of these technologies. And these responsibilities fall upon its creator and user, the human persons.

With all these perspectives, Pope Francis seems to be making a call to remind everyone of their responsibility and duty over these technological advancements. In *Laudato Si*, he referred to Romano Guardini a few times, particularly on how human relates to technology. Pope Francis quoted Guardini who said that "contemporary man has not been trained to use power well" (p. 78). With this the Pope explained "because our immense technological development has not been accompanied by a development in human responsibility, values and conscience" (p. 78). Human persons, it seems, are conditioned and apparently "we have certain superficial mechanisms, but we cannot claim to have a sound ethics, a culture and spirituality genuinely

capable of setting limits and teaching clear-minded self-restraint" (p. 78).

Given all these, the Church is slowly defining the relationship of technological advancements with the human family. She is now clarifying, after reflecting on the positive and negative effects of these emerging technologies on the moral behavior of the people, that the human person has to take moral responsibility in the development and use of these technologies. That the technological commandments based on pure science and economics cannot bring people to their proper end, i.e. loving solidarity with one another, with nature, and with God. This loving solidarity with others, with nature, and with God should be the foundational value of an empowered responsible parenting model of relationship that this paper is proposing. However, the Church is not proud. She recognizes the weakness of the human person in front of all these technologies. Thus, a constant renewal toward a healthier relationship with technology is important.

Technological Conversion: Towards Empowered Parental Responsibility

If Pope Francis (2015) proposes in his encyclical *Laudato Si* a certain sense of "ecological conversion" (p. 157), this paper proposes another type of conversion: technological conversion. As empowered and responsible parents and creators of technology, developers, and designers will produce technologies that will be beneficial primarily for the users with very minimal harm if not at all. And on the side of the user, they restore their dignity as creators in control of their devices rather than the ones being controlled by them.

Foremost to this technological conversion is for the human person to take back again the freedom that technological advances have taken away. This can be done by responding to the call to a simpler lifestyle; fulfilling one's duty to others and to the planet; going back to the original purpose of human life about being a creation of God; and finally returning to a more responsible relationship with oneself, others, nature, God and with our creations.

This technological conversion is not anti-technology, rather it is directed towards a responsible relationship with it. Recognizing that these technological advancements are signs of God's gift of intelligence to humanity, thus continuing the creative process. Technological conversion does not refer to running away from cybertechnological advancement but simply a call to focus on taking control of these cyber technologies rather than the other way around.

Technological conversion also speaks to both cyber technology developers and users taking responsibility for the development of new cyber technologies. Emerging cyber technologies should promote human dignity rather than demean and destroy it. It should promote authentic human relationships among peoples, between people and nature, and between people and technology rather than becoming a cause of division. That it should promote awe among developers and designers towards the Giver of such human creativity. As Hefner (1994) would say, human beings are created co-creators. As such, we are called to generate new things according to the plan of the Creator. As created co-creators, there is a constant call to bring the next generation of humankind to a higher plane of existence but imbued with greater responsibility and complete regard for the dignity of the human person and all of creation.

Technological conversion also invites developers and users of cyber technology to regard the whole of creation, even those that humans have discovered and created, as part of a kinship, a kinship of creation, as Elizabeth Johnson would say. The human persons are not above it who lords over all creation but a brother, a sister, a son, a daughter to all creation. This kind of model challenges the technocratic view of extraction, exploitation, and complete domination. In this perspective, all are invited towards this conversion.

Going back to Thoreau's words when he said that we should not ride on the trains but instead let the train ride on us speaks about who is in charge, who is in command, and who has the power. Though many experts in the American literature agree that Thoreau refers to the exorbitant price of traveling by train, he also reminds the value of who is in control, and who has the freedom to decide and see the difference. In other words, Thoreau was responding to the juxtaposed order of things that was becoming apparent in his time: that man needs to ride the train. Instead, he calls the people to go back to the original intent and more humane option, that the human person is more important than the train; that the human person has the freedom to choose whether to take the train or not; and that the human person

can discern the meaning of technological development that happens around him or her. This is what is meant by being empowered.

Fortunately, not all experts in cyber technology fall within the technocratic paradigm. There are dedicated individuals and groups that point cyber technology developers and designers toward a more humane and responsible innovation and development. Some advocates remind the users how they could use technology that would help them become better and loving individuals and not fall prey to the economic value of those who manipulate private data and put people at risk physically, psychologically, and spiritually.

Thus, there is a need to respond to the call of Pope Francis, that is to have a sound ethics and deeply ingrained spirituality in one's culture. There is a need to increase the capacity and power of the human person in setting limits and controlling oneself to discern how to use cyber technology, how many parts of one's life should be entrusted to such technologies, and how these technologies help each one become a better and more loving person. The call towards technological conversion is simply a way to reclaim the dignity of the human person in the face of the overwhelming domination of cyber technology. It is also a call for developers and designers to prioritize human persons as users and not just a part of statistics in big data analysis. In other words, there is a need to empower the human person by recognizing and acting with the freedom that was given to each one and developing a conscience that recognizes what hurts others and what is the most loving action.

Conclusion

The paper began by providing a background of an exciting future for the human family as we enter the dawn of the 4IR. However, given recent major incidents in the use and design of these cyber technologies, developers, and users are encouraged to reflect on how to avoid these scenarios. Various individuals and groups call for more mature and responsible innovation and research in the field of cyber technology. They advocate the primacy of the human person over all these cyber technologies. They are leading the call to bring technology back to the people and not to feed the people to technology. They were simply calling for a more responsible innovation, development, and use of these technologies.

This paper also attempted to correlate the views presented with what Pope Francis (2015) in his encyclical *Laudato Si* reflected particularly on the need for the human person to develop responsibility, values, and conscience side by side with the fast-developing cyber technologies. A reference was also given to Pope Paul IV's (1967) encyclical *Populorum Progressio* which puts the human person in his or her proper place in these technological developments, that the human person is the author of these advancements. However, this authorship comes along with responsibility. It must be for the good and integral development of all, including the whole of creation, and not for the economic benefit of a few. Thus, the paper proposed empowered parental responsibility as a model of relating with the emerging cyber technologies. This kind of relationship supports the view of many advocates for ethical and responsible cyber technology research and development. It also puts the human person as the end goal and purpose of these technologies, not as mere objects and statistics. Therefore, developers and users of cyber technology need to be responsible for their design and use. Finally, human persons as users of cyber technologies must regain control, through constant technological conversion and renewal, over these man-made creations rather than the ones being controlled by them, thus becoming empowered and responsible cybertechnological parents and 4IR-proof humans.

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