The Humanization of Homo Poeieticus Moral Agent in Luciano Floridi's Information Ethics

Muhammad Ridho Anugrah[1] and Herdito Sandi Pratama[2](✉)

[1] Undergraduate Program of Philosophy, Faculty of Humanities, Universitas Indonesia, Depok City, Indonesia
[2] Philosophy Department, Faculty of Humanities, Universitas Indonesia, Depok City, Indonesia
herditosandi@ui.ac.id

Abstract. The use and development of digital information technology sparks a significant social structure shift. Luciano Floridi, through his re-ontologization technology explains that information could radically change the social structure. The re-ontologization is created through the interaction of inforgs and infosphere. The theory becomes the ethics foundation called information ethics (IE). Information ethics emphasizes infosphere with ideality without the entropy to explain the definition of 'good'. Through the understanding of ethics as the construction of ideality, Floridi believes that humans are homo poieticus, a demiurgic characteristic of the informational and moral agent. Before becoming a homo poieticus, a human being must look back at his cognitive capability, especially in the rapid and massive development of information. Behavioral ethics explain the cognitive problem of humans as moral agents are limited by its ratio and habit. Behavioral ethics use the basic concepts, such as the limitations of rationality, the limited ethicality, and the heuristics inside of it. By understanding and realizing the limitations, humans can maximize their ethical decision making. These limitations do not allow for a holistic understanding of ethics and infosphere. However, through the limitations of keeping the infosphere, we must maximize the ethical decision making to make homo poieticus wise.

Keywords: Behavioral Ethics · Cognitive · Ethical Decision Making · Homo Poieticus · Information Ethics

1 Introduction

1.1 Overview

Society and individuals are now in a condition where information and technology are very influential. This condition is called the network society and information society. Manuel Castells [1] defines network society as the society where its social structure is formed through micro-electronic information and communication technology. Jan van Dijk [2] defines it as the society where the social and network media form a primary mode, which is the most important part of the social structure. As information technology

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develops, the social structure shifts to the radical stage, which is ontology. The social structure shift raises an understanding of re-ontologization, which is directly related to information ethics.How is the shift sees the role of the moral agent and the understanding of ethical decision making?

The role of information can re-form humans' understanding, both individually and collectively. According to Luciano Floridi [3], re-ontologization is a form of radical reengineering, in this case, the ontology or essence. What is engineered is the social environment and the humans' understanding of it. Re-ontologization creates a new condition in the society and individuals which called infosphere and inforg. Infosphere is a condition where the information environment is constituted by every information entity (including information agent), property, interaction, process, and mutual relationship. In its ultimate definition, infosphere is a concept where the information ontology can be seen as a reality or being [3]. On the other hand, inforg is the abbreviation of informationally embodied organisms, which is the organism that is realized through information. Inforg is mutually connected and embedded in the information environment, which is the infosphere that is shared with either natural or artificial agent [3]. The human or inforg have a role as the moral agent in an ethical dilemma.

The moral agent has a role in ethical decision making. Ethical decision making is a decision making or consideration process based on an ethical and moral standard. Ethics, often referred to as moral philosophy is a branch of philosophy that discusses systemization, defending, and recommending a concept from what is right and wrong [4]. According to his re-ontologization understanding, Luciano Floridi initiates an ethical dilemma with information ethics. Floridi's information ethics emphasizes information process and flow and not reduces it into a concept. The moral agent and information object in an infosphere is explained through RPT model and abstraction level (LoA) in explaining how information ethics can be ecological and be constructed. Information ethics emphasizes on ideality, without the entropy in the information to explain the definition of 'good'. Through the understanding of ethics as ideality construction, Floridi believes that humans are homo poieticus. Homo poieticus is a demiurgic characteristic of the informational and moral agent [5]. That characteristic uses information technology to create a conducive situation in the information ecosystem.

The authors believe that the understanding of homo poieticus must be traced back to its cognitive capability as a moral agent. This happens because humans still inherit limited cognitive capacity and move evolutionarily. Cognition becomes important because moral agents use their cognitive abilities in processing information. Information technology moves revolutionary and breaks many limits, community and individuals' structures. The limitations and the slow development of human cognitive capacity as moral agents can guide humans to ethical and unethical behavior. Before acting as demiurgic moral agents, humans must re-investigate their capacities. In this attempt of investigation, the authors use behavioral ethical theory and related concepts.

Behavioral ethics is the realm of studies that aims to understand how people behave when confronted with ethical dilemmas [6]. Behavioral ethics see ethical problems from habitual problems, cognitive capacity, and human rationality. Ethical discourse has the same starting point, which is the starting point where humans have the ability to think in determining their actions (rationality). Rationality cannot be separated from habits,

attitudes, or commonly referred to as behavior. Rationality aims to determine what is right and wrong. To achieve this goal; action, assessment, and decision making are needed.

In explaining behavioral ethics, there are several related concepts. The third concept become the umbrella and the basis. The first concept is Bounded Rationality Concept. The second concept, which is Bounded Ethicality is directly related to the previous concept. Then, it relates to the third concept, which the use of heuristics. From this limitation, humans tend to use heuristics in making decisions.

This article explains how the role of the limited capacity of moral agents in the network and information society as a humanization form of homo poieticus in Floridi's information ethics. This humanization effort aims to achieve a homo poieticus who is wiser in maintaining and developing the infosphere. By understanding of cognitive limitations from behavioral ethics and related concepts, a demiurgic homo poieticus can be achieved because by realizing and understanding these limitations, humans can maximize their ethical decision-making. This limitation does not allow for a holistic understanding of ethics and infosphere. However, based on this limitation, an effort that must be taken to protect the infosphere is maximizing ethical decision making. From the maximization effort, the authors believe that homo poieticus can be wiser in protecting and building the infosphere.

1.2 Research Methodology

The research methodology that the authors use is the quantitative research methodology to explore and understand the meaning of social beings and issues [7]. The philosophical method that is used is the conceptual distinction.

The conceptual distinction is a philosophical abstraction form that shows the difference between concepts in philosophy [8]. The examples in philosophy are systematics distinction philosophy, philosophical and non-philosophical dichotomy, and mind-body dichotomy. In this article, the conceptual distinction is used to sort the concepts that the authors use in explaining the problems. The distorted concepts are the network society concept, re-ontologization, ethics, information ethics, meta-ethics, behavioral ethics, rationality limitations concept, and heuristic. The conceptual distinction in this research aims to investigate the concepts and theories, which then will be put together. The distinction between contexts, information ethics theory, and behavioral ethics will help in an effort of putting together to answer the problem in the research.

1.3 Literature Review

The authors use Manuel Castells and Luciano Floridi's theory of network and information society as the context. Then, Floridi's re-ontologization understanding is used as the basis of information ethics. Consequently, information ethics is used to explain the problems raised in this article, which is the concept of homo poieticus. The concept then will be re-comprehended through behavioral ethics theory.

The main literature used in this research is *The Ethics of Information* [3] of Luciano Floridi. Other works of Floridi about information and ethics support the problems raised in this research, similar to the studies of Asmiyanto [9], Brey [10], Capurro [11], Doyle

[12], Durante [5], Ess [13], Volkman [14]. Manuel Castell and Jan van Dijk's [1, 2] research about network society is used as the research background. The discussion of behavioral ethics, Max H. Bazerman, Robert Prentice, David Messick, Ann E. Tenbrunsel, and other research also support the problems in this research along with other research from Daniel Kahneman and his colleagues in 1972, 1974, 1981, 2003, and 2006 [15–19]. To discuss the concept of rational limitations, the research used by the researchers is Simon's research, which published in 1980, 1991, 1992, 1993, and 1995 [20–24] along with the research introduction from A. Rubinstein, K. D. Miller, Gerd Gigerenzer, and Mateo Cristofaro.

2 Discussion

2.1 The Condition of Network Society and Information Re-ontologization

The term network society was created and popularized by Jan van Dijk and Manuel Castells. Van Dijk [2] defines network society as a society where the social and media network forms the social structure's essential mode. Castells further defines the network society by adding the factors of digital information technology development to it. To define it, we have to know the definition of network, the society in it, and the influence of technology. According to Castells [25], a network is a formal structure where its nodes are connected to one another and do not have a center. These nodes are in a network which structure is open and developed by adding or subtracting (the network works with binary logic, inclusion/exclusion) according to the purpose of the network. The development of the network itself is triggered by the development of digital information technology, which according to Castells (Ibid.:4), is the backbone and could break society's historical limitations. The society that starts from the local scope is now breaking its boundaries into the global scope. Then, the word society cannot be separated from technology. According to Castells [25], technology does not change society, but technology is the society itself since technology is created by society based on the needs, values, and interests of the society that uses it. In short, Castells [1] defines a network society as a society which social structure is formed by micro-electronic information and communication technology. How can a network society occur?

Castells [26] explains the reasons network society can occur with three processes. The first process is the crisis and restructuration of industrialism and the two understandings of its production, which are capitalism and statism. The second process is the socio-cultural movement based on the liberation movement developed in the 1960s-1970s era. The third process is the information and technology revolution. Digital information technology gave rise to a revolution that is captivating and effective in social organizations. In the end, society shifts from the industrial society (or can be drawn further from an agricultural society) to the network society.

In the network society, the process of the social structure shift is influenced by the development of digital information technology. People use information in everyday life in survival, interaction, and others. Information is not only important in a society that has become a network society, but it also exists in times where humans are more primitive than now. The humans during the hunting and gathering era rely on information, such as the habitat of wild animals, edible food, the coordination with other humans, and so on.

Information is increasingly developing along with human development and its history. The birth of language in the world is a form of delivering information that has been systematized. In agricultural and industrial times, information development becomes more substantial. Castells [1] explains that humans engage in human organizational interactions based on relations of production, consumption, reproduction, experience, and power that are expressed in the communication formed by culture. This communication is based on the flow of information. For example, in the Middle Age, a kingdom had a record of how many potteries the farmers produced, how much was the royal treasure, how other royal defenses were annexed, and so on. Castells [1] argues that the society at that time was limited and vertical-hierarchical. The development of information technology breaks these limits and forms. Then, what is information and how does it shift the social structure?

Information can be simply defined as the communication or acceptance of knowledge or reason [27] or facts given or learned about something [28]. However, Luciano Floridi [29] still considers information as an elusive concept. Information can be seen through three perspectives: information as reality (example: the use of physical signs, such as the true or false sign); information about reality (example: semantic information, ethical information); and information for reality (example: commands, generic information, algorithms, orders, or recipes). These perspectives cannot give a single definition of information. However, information definitely exists ontologically. Information is around us; moving, and growing. The development of information changes the structure of society, especially in the network society. How are the changes that are influenced by information occur in the social structure?

Information-influenced changes are referred to as re-ontologization. Luciano Floridi [3] defines re-ontologization as a form of radical reengineering, in this case, ontology or its essence [3], where the engineered one is the social environment and human understanding of it. In line with Castells, Floridi believes that digital developments in information technology are accelerating information spac's development. This development occurs largely due to the convergence between digital devices and digital resources. The ontology of information technology, such as software, algorithms, databases, and protocols can be compared to the object's ontology, and raw data can be manipulated. The flow of information in digital technology has less interference [3], which will make it difficult to distinguish between the online and the offline [3]. Re-ontologization raises new conditions in society and individuals called infosphere and inforg.

The infosphere is a condition in which the environmental information is constituted by every information entity (including information agent), property, interaction, process, and mutual relationship. In its ultimate definition, infosphere is a concept where the information ontology can be seen as a reality or being [3]. On the other hand, inforg is the abbreviation of informationally embodied organisms, which is the organism that is realized through information. Inforg is mutually connected and embedded in the information environment, which is the infosphere that is shared with either natural or artificial agent [3]. This condition changes the nature of reality, which previously was material, where the objects and physical processes have a key role, towards something informational. This change means that objects and processes are being realized, in the sense that they appear to be things that support-independent. Floridi gives examples of

music files, such as.mp3, iTunes, and others [3]. Things that are informational, then trigger us to construct, label, and adjust ourselves in the infosphere.

The changes caused by information lead to a revolution called the fourth revolution (Fourth Revolution, Revolution 4.0). The previous three revolutions were the Copernican Revolution, the Darwinian Revolution, the Neuroscience Revolution. These three revolutions are the milestone for the humans' understanding of their role in the world. The fourth revolution emerged after the development of computers, digital information technology that began in the 1950s. From these revolutions, Floridi cannot deny that humans are inforgs as he previously denied being a Newtonian, a single entity, or rational as a whole. As inforgs and infosphere, humans and information become even more connected without interference [3]. This relationship can be seen with the emergence of artificial or hybrid agents, such as smartphones, cameras, laptops, etc. These agents operate in the same ontology domain as humans and have freedom in them. The role of these agents ontologically does not directly change human physicality. However, what ontologically changes (re-ontologization) is the world and its metaphysical interpretation [3]. An explanation from Floridi shows that digital information has become an integral part of human life, and reality has changed by it.

Epistemologically, Floridi believes in the constructionist perspective that emphasizes on the experiences that shape reality. It means that the practical (social, legal, ethical, and political, etc.) impacts of digital information technology in the world cannot be separated from the epistemological impact, such as how the epistemic agents experience a reality that is constructed by information objects [5]. The inforgs and infosphere are constructed in human life, even to the radical stage.

Information through the re-ontologization understanding has succeeded in shifting the social structure. If using the network society understanding of Castells', digital information technology radically changes the shape of society. Strengthened by Floridi's understanding, information changes through the construction of epistemology that changes the ontology of structure. The condition of a society and the agents within it are in the infosphere. Therefore, how is this condition if it is raised in the ethical dilemma? Floridi initiates the theory of information ethics in explaining it.

2.2 Bubble Economy

Floridi [3] delivers a model called information ethics (IE) based on his understanding of re-ontologization. Floridi moves from the computer ethics to the information ethics aimed at asking how the computers on ethical issues and questioning the role of other entities, such as humans [11]. Floridi's information ethics uses naturalist and realist approaches from macro-ethics. Floridi's information ethics is a moral system that is based on the nature and the corroboration of infosphere and moral claims that universally bind all agents whenever and wherever. Information ethics is different from virtue, happiness, or responsibility ethics, a classic mode of ethics where moral problems are agent-centered [9]. Then, what is information ethics and how does it move?

In information ethics, the ones that play a role are information objects and agents. Everything, whether it is a table, a human being, or dust is described as an information object. An information object is an object defined through its level of abstraction (LoA) that contains a data structure that specifies its attributes and conditions when faced with

other objects. Levels of abstraction (LoA) are epistemic description concepts designed by Floridi that aim to go beyond the classical viewpoint that is only based on one level. The level of abstraction is used by Floridi to capture the reality that can be described by analysis, from abstract to concrete, with its own ontology. The moral claim foundation of information ethics is all information objects with moral intrinsic value [10]. On the other hand, agents are systems, which are in and a part of an environment that can transform, create impacts, or give strength over time [3]. These agents can be in the form of an artificial agent that Floridi considers as mindless. Examination, both intrinsically and extrinsically, is also obtained through levels of abstraction (LoA). Eventually, human beings or inforgs who have consciousness, such as will and rationality, are the moral agents.

In information ethics, moral agents will be interested in finding what is best for them. Therefore, inforgs that acts as a moral agent intuitively seeks and produces information [9]. Floridi [3] uses his model Resource, Product and Target (RPT) in explaining the flow of information. A resource is where the inforgs has resources in the form of information. Then, the inforgs processes the resources into products in the form of other information. Thus, the process affects the inforgs information environment (information becomes the target) in the form of the infosphere. The flow shows how technology can radically change the "life of information" in epistemology or ontology, which is bound to have moral implications for any moral agent.

Ethics according to Floridi is not only based on the capacity to uphold moral standards, principles, and regulations. Ethics cannot be reduced or absorbed to be more completed (objectivism or historicism) and vice versa (subjectivism or idealism). This relationship is the structure of a moral situation, which becomes the 'envelope' of moral agents. Prior to the existence of moral standards, principles, or regulations, there have been informational interactions of moral agents [5]. Similar to his re-ontologization understanding, Floridi sees epistemic ethical problems as something constructed. In this case, information can be in the form of a quantity that someday can be in the form of quality. Based on the Hegelian term, the problem of epistemology is not the description of what is a reality, but the experience of reality, which does not have presumptions in it. The infosphere, which covers everything, including the inforgs, has an ideal and relative nature. That idealism and relativity are based on the connection of informational objects. It can be concluded that Floridi emphasizes his ethical problem with the construction of idealism and relativity in the infosphere.

From the understanding that ethics is a construction of idealism, Floridi considers inforgs or humans as homo poieticus. Homo poieticus is a demiurgic characteristic of the informational and moral agent [5]. Previously, humans had several nicknames and assumptions about how they interacted with nature, such as the assumption of homo faber that considers humans to be the 'exploiters' of natural resources; the assumption of homo economicus that positions humans as producers, distributors, and consumers of natural resources; and the assumption of homo ludens that considers humans as players. These three viewpoints do not represent human figures as protectors and owners of ethical responsibilities. Therefore, homo poieticus, which is the new role of humans as the 'creator' of the universe who maintains and develops the infosphere, emerges. As ethical agents, the role of humans is to use information technology as the approach to

create a conducive situation in the information ecosystem. Agents aim to get information around them and get involved in it as a creator [9]. How do moral agents determine what is good and bad?

In determining the good and bad, Floridi [5] uses four principles and three criteria regarding ethics that must be understood and appreciated. Floridi in seeing the "bad" uses the term entropy. Entropy can be referred to as the damaging, corruption, pollution, or disappearance of informational objects, or it can also be referred to as impoverishment of reality [5]. The first principle is that the entropy cannot be caused in the infosphere. The second principle is that the entropy should be prevented in the infosphere. The third principle is that the entropy must be removed from the infosphere. The fourth principle is the progress of informational entities as well as the infosphere must aim to preserve, grow and enrich it. Then, the first criterion is moral development. These principles aim to develop moral values, which can even be measured statistically and dynamically. The second criterion is the moral balance. Most of the humans' moral actions do not meet the first criteria, but enough to balance positive moral values. The third criterion is the resilience of kindness. Along with the development and moral balance, moral problems can be vulnerable. Therefore, the endurance from the principle of kindness must be sustained. The four principles and the three criteria aim to explain how the four principles are applied and run as moral standards, or more general to maintain the infosphere.

Floridi's information ethics emphasizes the process and flow of information and does not reduce it to an understanding. Information objects and agents in the infosphere are explained through the RPT model and the level of abstraction (LoA) in explaining how information ethics become ecological and constructed. Humans or inforgs are considered as homo poieticus that construct and protect information. Floridi creates four principles and three criteria in explaining what is good and bad. Information ethics emphasizes idealism without the entropy in the infosphere to explain what is 'good'. The authors believe that Floridi is succeeded in explaining how the flow of information, especially in the society that has become a network society, affects the social structure and ethical decision-making. Moreover, moral agents who construct and protect information (homo poieticus) have limited cognitive capacity in judging. The digital information technology revolution, and how it changes the social structure is increasingly unstoppable. In this case, limited cognitive capacity cannot be separated from the habitual or behavioral problems of humans. Behavioral ethics will be an explanation and an attempt to sharpen the problems in moral agents.

2.3 The Information Ethics Humanization Through Behavioral Ethics

Before we start, here are some previous criticisms of Floridi's information ethics. Capurro [11] criticizes the basic metaphysics of Floridi's information ethics. Capurro criticizes Floridi for putting aside the cultural basis and human limitations, as well as the placement of artificial agents in it. Doyle [12] argues that Floridi failed to show intrinsic value in all objects obtained through information. Doyle also criticizes Floridi through consequentialist ethical views. Volkmann [14] argues that the problem of information ethics must begin with virtue ethics. Brey [10] criticizes that the egalitarian argument for the

Floridi's object is not practicable and ethical issues must be returned to the biocentric view. These criticisms are different from what the authors will say.

Reviewing the position of moral agents, humans, or inforgs as homo poieticus is caused by humans' limited cognitive capacity. Indeed, Floridi [3] acknowledges that information has broken the understanding of the nature, implications, consequences, and conceptual issues of information that is rapidly developing. It should be noted that human cognitive capacity's development is not as fast as information technology development. Humans have still inherited the cognitive capacities formed by billions of years of evolution and their development is slow (hence, evolutionary). Meanwhile, information is undergoing a great revolution that is not even hampered by human cognitive capacity. Humans still use that cognitive capacity in making decisions, in this case specifically, ethical decision making. Then, this utilization can lead to ethical and unethical actions. Therefore, to reach a wiser homo poieticus, we must return to the problem of the moral limitations of cognitive agents first.

The aim of making homo poieticus wiser is in accordance with Floridi's view that what is good is the idealism in the infosphere. If the moral agent still has a high possibility of errors and unethical behavior, the infosphere will be filled with it. Similarly, if moral agents have delegated the ethical problems to the artificial agents when the builder of information reality is not careful to see his cognitive limitations, the possibility of an artificially evil moral agent may be unavoidable. The possibility of total chaos in the infosphere is also possible in it. By returning it to cognitive limitations, these possibilities can be minimized, and the maximization of ethical decision making can also be achieved.

The understanding of cognitive limitation is important due to its use in processing information. The models are shown by Floridi [3] in processing information, such as levels of abstraction (LoA) and RPT use human cognitive abilities in it. In the level of abstraction, giving attributes and conditions to information objects requires awareness and cognition from the agent. Information objects such as tables, humans, or dust will not have value without the agent's awareness and cognition, similar to the RPT model. Resources are related to the abstractions of information objects. Without abstraction, these resources cannot be processed. For example, there is not any table in Room A that can be abstracted by humans, the table cannot be considered as information because it is not a resource. The process of resources to be other information products cannot also be continued without the cognitive continuation of resources. The table can be considered as information if it is processed cognitively. Information, which is then targeted in the form of the infosphere, cannot exist metaphysically without the continuation of cognition or inter-cognition from other agents. If the cognition problems are released, there are only material objects such as tables, humans, and dust without the value and understanding of their existence. In other words, cognition is the basis of the existence of information philosophy and information ethics. This relationship between cognition and information is the link between information ethics and behavioral ethics. After achieving the cognition from information, moral agents then make ethical decision. In the problem of ethical decision making, the cognitive capacity of moral agents cannot be separated from the factors of rationality, biology, and behavior that is formed evolutionarily. Behavioral ethics is an effort in explaining this problem.

Behavioral ethics is the field of studies that aims to understand how people behave when confronted with ethical dilemmas [6]. Behavioral ethics emerge along with the development of philosophical discourses and other fields of studies, such as psychology, behavioral science, and neuroscience. Behavioral ethics is based on the belief that there are many psychological research and behavioral economics domains that are considered relevant. Two themes that play a role in behavioral ethics are the focus on the 'self' and the intention distinction (or debate) of ethical behavior. The first role magnifies the role of 'self' in ethical issues that were previously not being discussed much. Our view of ourselves influences the ethical habits, both to ourselves and to others. The second role looks at intentionality that moves in parallel with behavioral science. This second role can be explained using two systems of thinking and the use of heuristics [30]. Behavioral ethics is different from modern and classical ethical studies that assume rationality as holistic and universal. Behavioral ethics emerges as a new study because the traditional approach to ethics and methods did not see the ethical problem from its subjects, contexts, psychological conditions, and the surrounding environment. For example, someone that has a good character and good ability in moral reasoning might be able to do bad things because he is influenced by psychological or social pressure, or other situational factors [31]. The assumption of behavioral ethics is that humans can have several sets of biological behavior patterns (bio-behavioral) that can occur adaptively and have tendencies in them [32]. The discourse on ethical decision making has the same starting point where humans can think in determining their actions (rationality). Rationality cannot be separated from habits, attitudes, or commonly referred to as behavior. In explaining behavioral ethics, there are several related concepts that become the umbrella and the basis. The first concept is the concept of Bounded Rationality Concept. The second concept, which is Bounded Ethicality, directly relates to the previous concept. The third concept is the use of heuristics.

The starting point of ethical decision-making is when humans can think in determining their actions, which is called rationality. Before heading to the concepts, we must understand what rationality is. Definitively, rationality is the condition in which a matter is related to or following a ratio [33]. According to Herbert Simon [23], the behavior is rational, and the decisions made from behavior are rational if they are in accordance with the goals. Rationality is a collection of abilities that we can use to achieve that goal. On the other hand, according to Simon, irrational is the adjustment of goals that are not true and the non-rational is the suitability of behavior towards its goals. Limitations of rationality differ from irrationality and non-rationalism. Irrational is an incorrect adjustment of purpose, while non-rational is the suitability of behavior towards its purpose. In reality, human rationality is limited in capability, capacity, space, and time. Consequently, a concept called the concept of limited rationality emerges.

The concept of limited rationality, which Herbert Simon first popularized, continues to develop in behavioral economics and behavioral psychology. Someone who is completely rational, who can solve all mathematical and computational problems no matter how difficult they are, is considered to be a mystical hero who does not exist in this world. Only for this reason, humans cannot use full and ideal rationality in decision making. Simon emphasizes the biological faculties and the bounding of ratios that made individuals diverge from the classical behavior (Simon uses the classical economic

model of Adam Smith as an example). Simon uses a metaphor of a pair of scissors. One side of its knife is the cognitive limitations of real humans, and the other side of its knife is the structure of the environment. Ratios with time, knowledge, and other resources limitations cannot be considered successful in exploiting structures in their environment [34]. Simon departs from classical economic theory that considers humans as a whole as the homo economicus of Adam Smith's theory of rationalism and Jeremy Bentham's utilitarianism. Both of these theories expect humans to maximize their utility. However, the reality is different as humans have limited movements of their cognition and humans operate in a social environment that has an impact on their decisions. This theory then cross-disciplinary develops in between natural science and social science [35]. Simon, Limited ethicality in a subsequent study [20], shows the three substantive areas that can contribute to the development of the concepts, which are the theory of evolution, the theory of human rational choice, and the cognitive science. It can be concluded that humans have limited rationality. What are the limitations of rationality when faced with ethical issues? Limited ethical theory, which directly relates to limited rationality, explains this.

Limited ethicality is a systematic method in which humans can unconsciously make mistakes [6]. This term was coined by academics from Harvard University, namely Max Bazerman, Ann Tenbrusel, Mahzarin Banaji, and Dolly Chugh [6]. The theory of limited ethicality is based on the theory of limited rationality. Limited ethicality is centered on the problems of psychological processes that can direct people, both good and bad, in ethical problems. Limited ethicality will proceed when individuals make decisions that threaten, and when the threat is inconsistent with the awareness, trust, and preferences. If normative ethics is trained or applied (whichever the theory is), it must be put together with behavioral ethics, and specifically, how these ethical problems are bound. From this approach, ethical dilemmas, and differences in the ways of decision making can be followed. Ethical assessment in this theory is based on the factors outside our consciousness [6].

The limitations of rationality and ethicality indicate that humans in ethical decision making have limitations. Indeed, human rational capacity can develop by increasing information that spread and the rapid development of information technology that facilitates the circulation. Then, the limitations and the abundance of information will trigger humans to use a faster approach, which is heuristics.

Heuristics are defined as humans' explanations of the results that come from personal judgment, based on the mental shortcuts that control our rationality. Heuristics are simple and automatic (reflexive), which help people to make quick decisions in uncertain situations [35]. The term heuristic comes from Greek that means 'find or found'. A mathematician, George Polya distinguishes the heuristics from analytical methods; for example, heuristics can be irreplaceable in looking for evidence, while analysis is needed in order to give validity to the evidence [36].

The deepening of heuristic emerges from psychology, similar to what Daniel Kahneman and Amos Tversky have done with prospect theory. Humans' explanation of results comes from their personal judgment based on mental shortcuts, called heuristics, that govern our rationality. Heuristics are simple and automatic (reflexive), which help people to make quick decisions in uncertain situations [35]. Kahneman and Tversky argue

that heuristics are actually quite useful but sometimes can lead to severe and systematic errors. This heuristic will then direct individuals and groups to biases. Kahneman and Tversky [16] say that there are 3 types of heuristics that humans use to predict probabilities, which are representativeness, availability, and adjustment of an anchor. Representation is usually used when people are asked to judge if an object or event is included in a different process. Availability is usually used in judging the frequency or plausibility of things. The adjustment of an anchor is usually used in numerical predictions when a relevant value is available. Kahneman [18] then continues his understanding of heuristics by proposing the use of two systems of thinking.

Kahneman introduces the understanding of humans that have two systems of thinking called System 1 and System 2. Both systems of thinking have differences in their agility and tendencies. System 1 is fast, reflex, responsive, and not careful. System 2 is slow, lazy and careful. In everyday life, according to Kahneman, people often use System 1. The use of System 1 has many tendencies and biases since it is not careful. Then, Tversky and Kahneman emphasize the role of cognitive accessibility in the emergence of heuristics and biases and the work of two systems theory. The accessibility strengthens intuitive judgment, makes it easy to perceive the ratios that affect judgment. Thus, this accessibility becomes the determinant of the characteristics of the cognitive mechanisms, in this case, System 1 and 2. Impressions are easily accessed are captured by System 1, unless intervened or modified by System 2 [18]. From this conception of accessibility, Kahneman [19] coins the term WYSIATI, which is the abbreviation of "What You See is All There Is". WYSIATI is taking or jumping to limited evidence-based conclusions, especially in intuitive thinking [19]. Kahneman, Tversky, and some of their colleagues see heuristics as something that can lead to something bad. Heuristics and the use of System 1 are vulnerable to bias and fatal systematic errors. In the issue of ethical decision making, this error can lead to unethical behavior.

In the condition of today's society and information, the use of heuristics in capturing information should be noted. The current speed and abundance of information cognitively force moral agents to use a faster approach. Heuristics and System 1 are the right tools that are often used in absorbing information. However, as explained earlier, the use of both can lead to fatal errors. For example, the availability of HOAX information that is repeatedly raised can be trusted by humans since humans have a confirmation cognitive bias where the more there is information that looks convincing, the more he trusts it. Then, the use of System 1 sees the HOAX information at a glance as convincing and confirms it. Using information ethics, the emergence of confirmation cognitive bias triggers entropy in the infosphere even though the information flow of this HOAX has passed through good abstraction, flow, and distribution to enrich the infosphere. With this understanding, how can we overcome this?

The solution is to accept that humans or homo poieticus as moral agents that have cognitive limitations. With this acceptance, homo poieticus also accepts that his rationality has limited ethicality and the tendency to use heuristics. Homo poieticus still has the demiurgic characteristic, but it is not similar to the omniscient God in Plato's demiurgic understanding. Homo poieticus has human limitations (therefore, humanization).

Through behavioral ethical explanations, full and universal ethical decision making cannot be done. However, what is important is how to maximize ethical decision making in the dilemma of information ethics.

After understanding the concepts of behavioral ethics, there are several attempts to maximize ethical decision making. The first attempt is the understanding that the limited rationality and ethicality of the agent can be maximized by enriching the point of view. Other agents also have cognitive limitations, but by adding perspective, they can break individual cognitive limits, whether the limits that can lead to bias or the availability of information that supports a problem. However, it should be emphasized that this maximization does not mean breaking the limits becomes unlimited and holistic. The second attempt is the understanding of the tendency to use heuristics and System 1 can be maximized by using System 2 in thinking. Careful and in-depth analysis of information can minimize errors and maximize the truth in ethical decision making. In line with the maximization effort, the use of System 2 also cannot cultivate a holistic understanding of information. There are other forms of maximizing efforts, but in general, the two attempts are quite representative. With the development of behavioral ethics, information ethics, and information technology, maximization attempts will be more practical and diverse. The maximization attempts aim to generate wiser homo poieticus.

The humanization of homo poieticus is carried out by reviewing the position of moral agents who have limited cognitive capacity, especially in the conditions of rapid and massive development of information technology, which is not balanced with limited and slow human cognitive capacity. To generate a wiser homo poieticus, we must return to the understanding of moral agents' cognitive limitations. This virtue is in line with Floridi's viewpoint of a moral agent as the creator and protector of idealism in the infosphere. The cognition, which becomes the basis of the information emergence of information, becomes the link between information ethics and behavioral ethics. Behavioral ethics becomes the umbrella of the limited rationality concepts, limited concepts of ethics, and the use of heuristics to explain these limitations. By understanding these concepts, the approach used in dealing with an ethical dilemma is to accept that the human limitations of homo poieticus. This limitation does not allow for a holistic understanding of ethics and infosphere. However, from these limitations, to protect the infosphere, the attempts that needs be done is to maximize ethical decision making. Through this maximization attempt, the authors believe that homo poieticus can be wiser.

3 Conclusion

Through the understanding of network society and re-ontologization, digital information technology radically shifts the form of society. Information changes through the construction of epistemology that changes the ontology of a structure. From this change, Luciano Floridi initiates the theory of information ethics. Information ethics emphasizes the construction of idealism, without the entropy in the infosphere to explain the definition of 'good'. Humans or inforgs are considered homo poieticus who construct information and protect it.

Homo poieticus is humanized through reviewing the position of moral agents who have limited cognitive capacity, especially with the rapid and massive development of information technology, whereas the cognitive capacity is limited and develops slowly.

This humanization aims to achieve wiser homo poieticus. This effort of virtue is in line with Floridi's viewpoint of a moral agent as the creator and protector of idealism in the infosphere. If the moral agent still has a high possibility of errors and unethical behavior, the infosphere will be filled with it. In ethical decision-making, the moral capacity of an agent cannot be separated from the factors of rationality, biology, and behavior that is formed evolutionarily. Behavioral ethics becomes the umbrella of the limited rationality concepts, limited concepts of ethics, and the use of heuristics. By understanding these concepts, the approach to deal with an ethical dilemma is to accept the human limitations of homo poieticus. This limitation does not allow for a holistic understanding of ethics and infosphere. However, from these limitations, to protect the infosphere, the effort that must be done is to maximize decision making. From this maximization effort, the authors believe that homo poieticus can be wiser.

4 Suggestion

The research on human cognitive limitations and how it plays a role in a society full of information can be maximized, such as actual research by conducting more studies on the subject itself, namely humans. The study can be carried out by field observations and studies of neuroscience about the capabilities of the human brain and its decision-making.

References

1. Castells, M. (2004). The Network Society: A Cross-cultural Perspective. Cheltenham: Edward Elgar Publishing Limited.
2. van Dijk, J. (2006). The Network Society: Social Aspects of New Media. SAGE Publications.
3. Floridi, L. (2013). The Ethics of Information. Oxford University Press.
4. Fieser, J. (2018, Mei 5). Ethics. Internet Encyclopedia of Philosophy. http://www.iep.utm.edu/ethics/
5. Durante, M. (2017). Ethics, Law, and the Politics of Information: A Guide to the Philosophy of Luciano Floridi. Springer. https://doi.org/10.1007/978-94-024-1150-8
6. Bazerman, M. H., & Tenbrunsel, A. E. (2011). Blind spots: why we fail to do what's right and what to do about it. Princeton University Press.
7. Creswell, J. W. (1994). Research Design: Qualitative & Quantitative Approaches. Sage Publications.
8. Baggini. (2010). The Philosopher's Toolkit: A Compendium of Philosophical Concepts and Methods. Wiley Blackwell.
9. Asmiyanto, T., Lubis, A. Y., Wibowo, & Catur, W. (2018). Hoax in the Context of Infosphere: The Role of Homo Poieticus in the Information Ecosystem. Journal of Culture, Society and Development, 40, pp. 13–18. https://iiste.org/Journals/index.php/JCSD/article/view/42354
10. Brey, P. (2008). Do We Have Moral Duties Towards Information Objects?. Ethics and Information Technology, 10, pp. 109-114. https://doi.org/10.1007/s10676-008-9170-x
11. Capurro, R. (2008). On Floridi's Metaphysical Foundation of Information Ecology. Ethics and Information Technology, 10, pp. 167–173. https://doi.org/10.1007/s10676-008-9162-x
12. Doyle, T. (2010). A Critique of Information Ethics. Knowledge, Technology & Policy, 23, pp. 163-175. https://doi.org/10.1007/s12130-010-9104-x
13. Ess, C. (2008). Luciano Floridi's Philosophy of Information and Information Ethics: Critical Reflections and the State of the Art. Ethics and Information Technology, 10, pp. 89-96. https://doi.org/10.1007/s10676-008-9172-8
14. Volkman, R. (2010). Why Information Ethics Must Begin with Virtue Ethics. In P. Allo, Putting Information First: Luciano Floridi and the Philosophy of Information (pp. 130-153). Oxford: Wiley-Blackwell.

15. Kahneman, D., & Tversky, A. (1972). Subjective Probability: A Judgment of Representativeness. Cognitive Psychology 3(3), pp. 430-454. https://doi.org/10.1016/0010-0285(72)90016-3
16. Kahneman, D., & Tversky, A. (1974). Judgment under Uncertainty: Heuristics and Biases. Science, New Series, 185(4157), pp. 1124–1131. https://www.jstor.org/stable/1738360
17. Kahneman, D., & Tversky, A. (1981). The Framing of Decisions and the Psychology of Choice. Science, New Series, 211(4481), pp. 453-458.
18. Kahneman, D. (2003). A Perspective on Judgment and Choice (Mapping Bounded Rationality). American Psychological Association, 58(9), pp. 697-720.
19. Kahneman, D. (2011). Thinking, Fast and Slow. New York: Farrar, Straus, and Giroux.
20. Simon, H. A. (1980). The Behavioral and Social Sciences. Science, New Series, 209(4452), pp. 72–78. https://www.jstor.org/stable/1684839
21. Simon, H. A. (1991). Bounded Rationality and Organizational Learning. Organization Science, 2(1), pp. 125-134. https://doi.org/10.1287/orsc.2.1.125
22. Simon, H. A. (1992). What Is an "Explanation" of Behavior? Psychological Science, 3(3), pp. 150–161. https://doi.org/10.1111/2Fj.1467-9280.1992.tb00017.x
23. Simon, H. A. (1993). Decision Making: Rational, Nonrational, and Irrational. Educational Administration Quarterly, 29(3), pp. 392–411. https://doi.org/10.1177/0013161X93029003009
24. Simon, H. A. (1995). Rationality in Political Behavior. Political Psychology, 16(1), pp. 45-61. https://doi.org/10.2307/3791449
25. Castells, M., & Cardoso, G. (2005). The Network Society: From Knowledge to Policy. Washington DC: Johns Hopkins Center for Transatlantic Relations.
26. Castells, M. (2010). The Rise of the Network Society. Oxford: Wiley-Blackwell.
27. Merriam-Webster Dictionary. (2019, April 28). information. Retrieved from Merriam-Webster Dictionary: https://www.merriam-webster.com/dictionary/information
28. Oxford Dictionaries. (2019, April 26). information. Retrieved from Oxford Dictionaries: https://en.oxforddictionaries.com/definition/information
29. Floridi, L. (2011). The Philosophy Information. Oxford University Press.
30. Tenbrunsel, A. E., & Chugh, D. (2015). Behavioral Ethics: A Story of Increased Breadth and Depth. Current Opinion in Psychology, 6, pp. 205–210.
31. Prentice, R. (2014). Teaching Behavioral Ethics. Journal of Legal Studies Education, 31(2), pp. 325-365. https://doi.org/10.1111/jlse.12018
32. Kluver, J., Frazier, R., & Haidt, J. (2014). Behavioral ethics for Homo economicus, Homo heuristicus, and Homo duplex. Organizational Behavior and Human Decision Processes 123(2), pp. 150-158. https://doi.org/10.1016/j.obhdp.2013.12.004
33. Merriam-Webster Dictionary. (2018, November 15). Rationality. Retrieved from Merriam-Webster Dictionary: https://www.merriam-webster.com/dictionary/rationality
34. Gigerenzer, G., & Selten, R. (2001). Bounded Rationality: The Adaptive Toolbox. Massachussetts: Dahlem Workshop Reports.
35. Cristofaro, M. (2017). Herbert Simon's Bounded Rationality: Its Historical Evolution in Management and Cross-Fertilizing Contribution. Journal of Management History, 23(2), pp. 170-190. https://doi.org/10.1108/JMH-11-2016-0060
36. Gigerenzer, G., & Brighton, H. (2009). Homo Heuristicus: Why Biased Minds Make Better Inferences. Cognitive Science, 1, pp. 107–143. DOI: https://doi.org/10.1111/j.1756-8765.2008.01006.x