CYBERNETIC SCIENCE IN THE CONTEXT OF THE PHILOSOPHY OF INFORMATION: ETHICAL PROBLEMS AND SOLUTIONS IN THE INFORMATION SOCIETY

Nesibe Kantar
Kırşehir Ahi Evran Üniversitesi, Fen-Edebiyat Fakültesi, Felsefe Tarihi AnaBilim Dalı, mail: nesibekantar@hotmail.com
https://orcid.org/0000-0003-3179-2314

Bilişim Felsefesi Bağlamında Sibernetik Bilim, Bilişim Toplumunda Etik Sorunlar ve Çözüm Arayışları

Öz

1940'lı yıllardan sonra bilginin teknolojiyle işlenmesi konusunda yaşanan gelişmelerde; daimî insan müdahalesine gerek kalmaksızın üreten ve karar alabilen otomatlar, yaşamın birçok alanına dahil oldular. Sibernetik ve bilişim bilimlerinin başını çektiği çalışmalar, zamanla sosyal bilimlerde de etkili oldu. Ekonomiyle ilgili üretim modellerinden düşünce sistemlerine, sosyal teorilere kadar birçok disiplini etkileyen karmaşık sistemleri yönetme ereğindeki otomasyon düşüncesi, bilişim çağını bilgi-makine ekseninde şekillendirdiği gibi, günümüz yapay zekâ sistemlerinin de temelini oluşturmuştur. Sibernetik bilimci Norbert Weiner, otomasyonla geleneksel toplum yapısının değişeceğini ve bu yapının diğer toplum modellerinden daha çok iletişim ve etkileşim içinde olacağını ve ihtiyaçlarının geleneksel toplum yapılarından farklı olacağını öngörmektedir. Yeni toplum yapısına ikinci dereceden sibernetik toplum yapısı adını veren Weiner'e göre, bu sibernetik toplumun ihtiyacı, etik ilkelerle tasarlanmış bir sistemdir. İnsan için hayati olan bu etik sistem birtakım ilkelerden oluşmak zorundadır. Sibernetik toplumda otomasyon, insan yaşamını ve değer alanlarını hiç olmadığı kadar tehdit etmektedir. Çalışmada Wiener'ın karmaşık sibernetik toplum anlayışına ve meydana getirdiği bilişim toplumunun etik ihtiyaçlarına değinilmektedir. Ayrıca, günümüz bilişim toplumunun akıllı araçları yapay zekâ, softbot, robot gibi teknolojilerin ürettiği etik sorunlar ve çözüm arayışları ele alınmaktadır. Çalışma, bilişim devrimiyle oluşan ikinci dereceden sibernetik toplum yapısını ve bu yapının oluşturduğu bilişim toplumunu irdelemeyi ve etik tartışmalar hakkında genel bir çerçeve sunmayı amaçlamaktadır.

Cybernetic Science in The Context of The Philosophy of Information: Ethical Problems And Solutions in The Information Society

Abstract

After the 1940s, significant developments occurred in studies related to processing information through technology. As a result, automatons capable of producing and making decisions without constant human intervention were integrated into various aspects of life. Studies led by cybernetics and information sciences have also become influential in social sciences over time. The idea of automation, which aims to manage complex systems that affect many disciplines from production models related to the economy to thought systems and social theories, has shaped the information age on the information-machine axis and has also formed the basis of today's artificial intelligence systems. Cybernetic scientist Norbert Weiner predicts that the traditional social structure will change with automation and that this structure will communicate and interact more than other social models and that its needs will be different from traditional social structures. He calls the new social structure the second-degree cybernetic social structure. According to Weiner, the need of this cybernetic society is a system designed with ethical principles. This ethical system, which is vital for humans, must consist of certain principles. In a cybernetic society, automation threatens human life and value areas more than ever. The study addresses Wiener's complex cybernetic society understanding and the ethical needs of the information society it has created. In addition, the ethical problems and solutions sought by the intelligent tools of today's information society, artificial intelligence, softbots, and robots are discussed. In general, the study aims to provide a general framework for the second-degree cybernetic society structure that emerged with the information revolution and the information society and ethical discussions that this structure has created.

INTRODUCTION

During the Second World War, and almost immediately thereafter, several powerful information technology advancements were made. After that, during the 1950s and later decades, information technology advanced rapidly. By the mid 1990s, worldwide use of the Internet had already produced major impacts upon political, social, and economic circumstances. More and more people found themselves living in a "cyber-world" created and sustained by a vast network of interconnected digital devices. The world today has become a place with innumerable inter-cultural interactions, and the "Information Age"[1] has arrived.

Luciano Floridi, one of the founders of the philosophy of informatics, claims that with the informatics revolution and especially the internet that connects the whole world, we are individuals living in a new atmosphere. The name of this atmosphere is the 'infosphere' (Floridi, 2014). If we consider that in addition to our daily lives, we now carry out the flow of information concerning our institutional processes such as education, government, and health in the infosphere, this definition is quite appropriate. Human behavior and achievements shaped in this new atmosphere have created new societies and communities. The basic structure of today's information societies is the new social structure models that started with cybernetic science.

The developments in the field of cybernetic science have gone beyond the field of science and have also been effective in social sciences. The control-communication-feedback features of cybernetic science, which transfer information, have had a revolutionary effect on studies in the fields of social, technology and science. The cyber world, whose foundations were laid by cybernetic science, has evolved into the form of 'information world' because of the advances in the fields of information science, computer science and internet technologies.

The development of artificial intelligence and other intelligent technologies highlights the ethical issues inherent in the information society constructed by cybernetic science. In order to cope with these ethical problems, new theories have been put forward in information ethics. Among these, the main theme is the 'production of ethical artificial intelligence tools', with a focus on technology, , the development of ethical approaches that embrace all of humanity while preserving human ethical values , and the prioritization of a pragmatic ethical system based on technological outcomes.

Today, whether they like it or not, nearly everyone is becoming a member of the worldwide "cyber-community". So, from the comfort of their own specific culture, without traveling by a car or train or airplane, people can easily interact with others from many different cultures. Because of this, the "Information Revolution"[2] is changing traditional habits and raising new and profound ethical questions and challenges. As non-human agents such as robots, softbots, and AI devices are now being created and used in many different societies and are becoming more and more prevalent in every aspect of our lives, an effective ethical theory is needed to live in a highly interconnected, multicultural world! The important point here is that ethical approaches provide promising and powerful ethical concepts and methods to help with a growing number of social and ethical challenges of the Information Age. Because as humans living in the same information sphere, an ethical perspective that also supports broadly applicable, culture-specific values, principles, and practices is needed. On the other hand, each age has its characteristics, problems, and solutions. For example, in the late 20th century, cybernetics, a science founded by Norbert Wiener, laid the foundations of the Information Age. Wiener, in *Human Use of Human Being*, emphasized that a new era and new ethical problems would arise with the new technology (Bynum, 2008, 9).

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1 Cybernetic science has also shaped the 'understanding of science' of the information age. This understanding of science with its interdisciplinary structure has also influenced social studies such as sociology, philosophy, and psychology. The dynamic growth of industry, the emergence and rapid development of atomic physics, quantum mechanics, general and special theories of relativity, and astrophysics in physics; the first atomic bomb explosion (1945), followed by the launch of the first atomic power plant (1954); the spread of electrical and radio devices; discoveries in biology, physiology and medicine (commercially produced (1941) penicillin (1928), the emergence of the three-dimensional DNA helix model (1953), the development of radiobiology and genetics, etc.); the creation of the first computer (1945) and the bipolar transistor (1947); Interdisciplinary studies such as choice theory (1951), artificial neural networks (1943), game theory (1944), and operations research (1943) exemplify the synthetic sciences of the information age (Novikov, 2016, 5).

2 The information revolution was started with cybernetic science in 1940 (Bynum, 2018), computer science represents a period that includes the present day with smart computational technologies including chip and chip technologies, internet and artificial intelligence systems. During the Second World War, Wiener and his colleagues developed an automatic system that followed warplanes in the air, predicted their trajectory and neutralized them with a computerized calculation method, which constituted (Bynum, 2000) the beginning of the Automaton era. Wiener's criticism, prediction and ethical suggestions regarding the social and individual ethical effects of digital computers and cybernetic science on human life are examples of the impact of the information revolution in the cyber world (Bynum, 2001, 109-112). The formation of ethical discussion areas caused by cybernetics and information technologies are the results of this important period (Kantar, 2024, 119-122)

The primary purpose of this paper is to shed light on the nature of the information society brought about by the new cybernetic model proposed by cybernetic science. The second purpose is to provide a general overview of the approaches that offer solutions to the ethical problems brought about by cybernetic society in our time

1. Cybernetics science and cybernetic society

Norbert Wiener, the founder of cybernetic science[3], defines cybernetics in his work *Cybernetics: or Control and Communication in the Animal and the Machine*, published in 1948, as follows:

Cybernetics is a broader field that includes the study of information and message transmission, control engineering, language theorems, and electronic engineering and computer science, including the study of messages as a means of controlling machines and society, the development of computing machines and other such automata, certain ideas on psychology and the nervous system, and a tentative new theory of the scientific method (Wiener, 1950, 15). Cybernetics is based on the search for solutions by integrating the proven results obtained by different sciences with other sciences (Nokikov, 2016, 10). The foundations of cybernetics and the branches it creates are as shown in Figure 1.
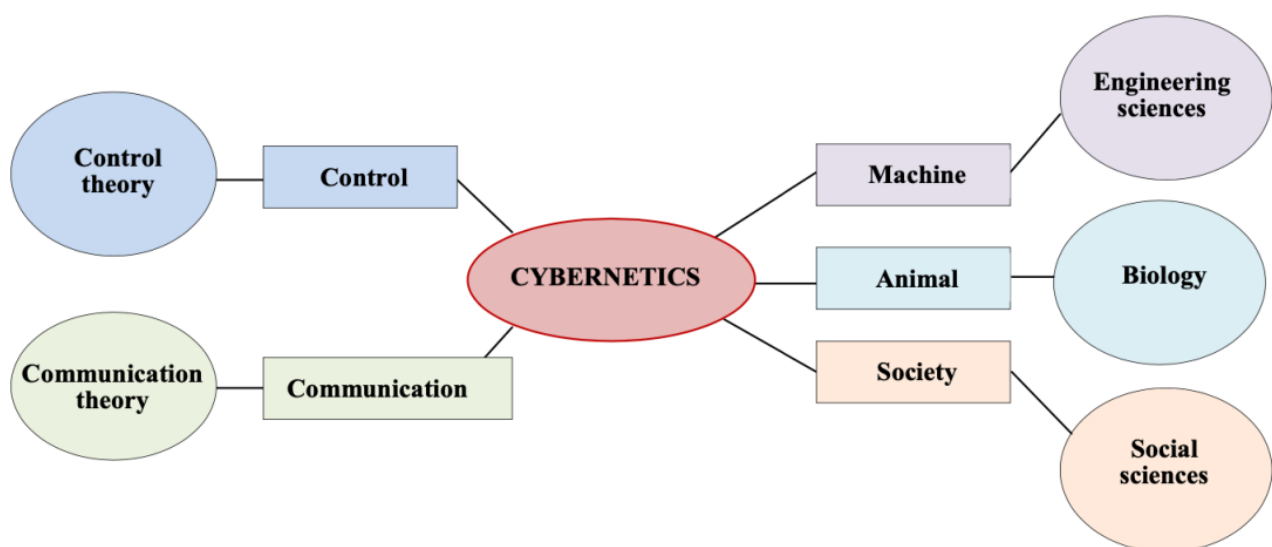

Fig.1 Fundamentals of Cybernetics (Novikov, 2016, 10)

In ancient Greece, "Kybernētes (κυβερνήτης)" means "ship captain, or pilot" and this concept includes the concepts of message, control, communication, and feedback, which are key elements of this science. Cybernetics, which includes basic concepts such as feedback, governance, transmission, transportation, is fundamentally based on three main elements: input, process and output. This techno-scientific study, which aims to manage and control machines or humans or related entities through feedback, was used during the Second World War to target and destroy anti-aircraft cannons using computational technology without human intervention (Wiener, 1950, 16). Cybernetics, which is fed by Gibbs Probability Calculations as its working logic, emphasizes the purpose of managing and keeping humans, machines or society under surveillance with the concepts of 'steersman' and 'governor'.

Cybernetics is a system science based on control and communication in living organisms, machines and all structures that can be organized. It does not matter whether this system is digital, mechanical or biological, it focuses on the processing of information and how the others respond to it in the interaction between species. The functioning of data, which can be any type of information, within the system, and how the information changes or is changed is the main subject of this science (Novikov, 2016, 7). Cybernetic society refers to the changes and transformations in the society and its structures from economy to the values in the way of life with information technologies that enable the processing of all kinds of visual, auditory and textual data.

Technically, what provides this transformation is the application of control and communication theories to society. These theories are the basis of technologies that provide the flow and circulation of information within society. Because in cybernetic society, the collection, analysis, creation and transmission of information are very important. Big

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3 Cybernetic science, which has two key concepts such as control and communication, is a discipline that enables interaction between machines, humans and society, in short, the art of steermanship (Ashby, 1956, 1).

data structures consisting of parts of society are taken as input through information systems and produced as outputs in a type that changes form after undergoing a certain process. The characteristic structure of cybernetic societies is the flow of information and data analysis that affect social dynamics and create new social structures.

Cybernetic societies have self-organization processes. They can interact with other societies by creating new connections with the flow of information they obtain. Cybernetic societies can interact with objects of different nature with their relatively independent structure. For example, artificial intelligence, computers, automatic cars, and all kinds of intelligent systems (Bynum, 2010b).

In cybernetic societies, there is a high-tech infrastructure that collects data, provides continuous control with intelligent automation systems, and enables fast and efficient information exchange between machine-human or human-human or between people and institutions with advanced communication systems. Additionally, it helps to create virtual and digital communities. Control systems in technology provide sustainable interaction in cybernetic society. Virtual or digital societies are in a continuous cycle of interaction, change and transformation, and the design of this system is achieved through cybernetic science. The most fundamental concept that creates this society is information and the transmission of information (Ashby, 1956, 4).

The information age is a new era governed by a 'new paradigm' in which society and economic relations are not organized primarily based on material goods. This paradigm is 'information' (May, 2002, 1). This paradigm has created new economic understandings, data expertise, systems analysis, and other business models, as well as shaped traditional social models and built new societies and communities. This new society model that has emerged is the information society.[4] The term information society, which was used in the early 1960s and is centered on information, was used to refer to cybernetic societies independent of geography (May, 2002, 3). In this new society model, also defined as post-industrial society, information can be coded with abstract symbols, and therefore it has a revolutionary nature that has affected the change and decision-making models of society (Bell, 1974, 21-23).
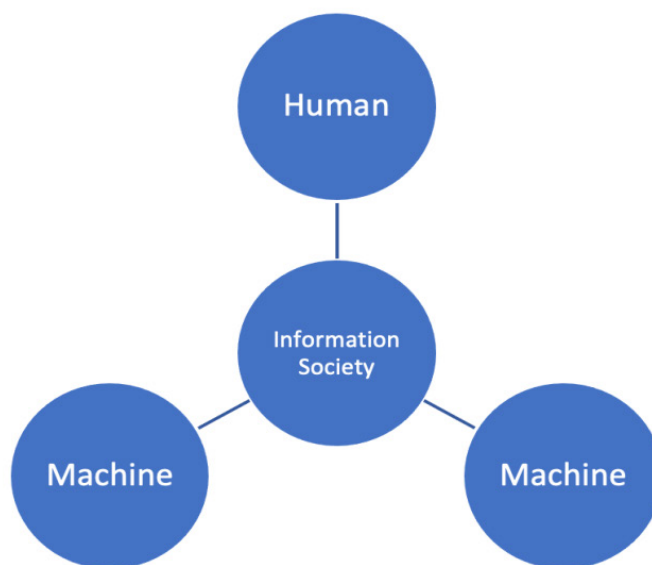

Fig.2 Basic structure in information society (Human, Machine and Information)

2. Information-Ethics Relationship in the Information Society

Information processing, which is the basic argument of the information revolution, has changed the way philosophers understand basic concepts in philosophy such as mind, consciousness, experience, reasoning, knowledge, truth, ethics and creativity (Moor, 1998, 14). This change created by information technologies has built the discipline of information philosophy. In particular, computational intelligent technologies and the ethical consequences of human

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4 The term cybernetic society, which was used in the early 20th century due to cybernetic science, has evolved into the information society with the developments in the world of information. In short, cybernetic society is a usage that refers to the pre-internet society (May, 2002, 16). However, since our issue here is not the classification of societies, it will be sufficient to clarify this issue only this much. Although their names are based on a scientific activity, the common main term of both is information. And cybernetic science is the common field of both information society and cybernetic society.

relations have deeply affected societies as well as affecting individuals. Thinkers interested in the philosophy of information have sought answers to the philosophical issue of what is good or not, regarding cybernetics and information science, which constitute the information revolution. According to them, it will be necessary to consider the ethical issues of the information society arising from the technology that is the source of this problem.

Entropy, which means 'transformation and decay' in ancient Greek (Akman, 1988, 107), refers to the concept of thermodynamics in the philosophy of information. It also refers to the theory of information that enables the transfer of data including sounds and images to a digital environment with mathematical calculations The term entropy, represents the destruction or decay of Being in the philosophy of information (Floridi, 2008, 200). According to this idea, the universe consists of information objects and the patterns formed by these objects. The basic structure of these objects is matter-energy and information. The decreasing, destructing and decaying in this structure is defined as Entropy (Asimov, 1950, 363).

The information society is a cybernetic society where there is communication, control and feedback. There is a constant flow of data in this society. Technologically living organisms such as smart phones, computers, and expert systems based on artificial intelligence that enable communication also provide data flow between each other. It defines the universe as cybernetic systems that are in communication, open and closed. According to this understanding?/ approach? , humans are open systems and a first-degree cybernetic entity that receives nutrients from the outside world, receives information through sense organs, determines their behavior according to this information and continues its existence with other elements of the universe (Wiener, 1954, 28).

Society is a structure consisting of a large number of first-degree cybernetic members, where communication and interaction are intense. Society can receive and give information to their environment. They contribute to communication by processing the information they receive with other information. The society, which is a second-degree cybernetic entity that processes data through perception, recognition, and memory, and has a share in the transformation of energy, is the information society. Information societies, while often striving for closed systems, are entities that are settled in the fabric of the universe and can resist natural entropy to varying degrees. Therefore, in the information society formed by any cybernetic system model, there is a need for accurate, reliable, and 'adaquate information' that will benefit the well-being of human life.

Cybernetic science is related to the processing of information and its transmission through communication and control methods. Therefore, cybernetics constitutes the mechanical infrastructure of the information society. One of the most important concepts in Wiener's cybernetic system is information. Wiener, who has a new materialistic understanding, argues that information is a physical entity, just like matter and energy. Everything in the universe consists of matter-energy and information structure. This structure is the basic element that provides all inputs in the cybernetic system. Cybernetics constitutes the mechanical system that provides communication within the machine-human-society of this structure (Wiener, 1948, 155).

The deterioration between humans and non-humans, including the universe, stems from this communication and interaction problem. If the governance and control system is not communicated correctly, the deterioration called 'entropy' occurs.

However, everything in the universe has a final fate. Humanity can resist this fate, and even if it cannot eliminate deterioration or destruction, it can reduce its negative effects. Because every being in the universe has a duty to continue the good in the universe. Wiener defines the beings that can best fulfill this duty as cybernetic beings. Cybernetic beings are separated from each other in terms of their levels of complexity (Ashby, 1956, 5). Although they differ in terms of degree, they all have a common purpose of helping the conditions of ethical good life by reducing entropy, which is the ultimate evil in the universe.

In the world and space-time region, there are 'entropy reducing' entities with various complexities[5], one of which is cybernetic society and communities. Wiener calls communities or societies as "second-order cybernetic systems". Every community or society consists of living organisms, which are first-order cybernetic systems. Cybernetic entities, especially humans, who process information at a certain level and make inferences with the feedback they receive from outside, also have a governance and control structure for the possibility of a good life.

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5 According to cybernetic science, society has a complex structure as a second-order cybernetic system. The complexity of a cybernetic structure is determined by the following principles: 1) The principle of reactions- responding to an external influence, 2) The principle of system cohesion- having a unifying balance within the system, 3) The principle of adaptation - average compliance in the system, 4) The principle of connected variety- continuity of diversity within the environment,5) The principle of limited variety- Limited diversity with interactive systems, 6) The principle of preferred pattern- the ability to connect to other systems, 7) The principle of cyclic progression-tendency to progress cyclically with other systems (Novikov, 2016, 40)

The second-order cybernetic system, the society structure, must have a set of ethical principles. These ethical principles are of vital importance in the cybernetic system for entropy, which represents the ultimate evil, decay. (Bynum, 2006, 163).

Although Wiener places first-order cybernetic members in the first place with their complex structures, second-order cybernetic systems are thought to be more effective in providing universal ethical benefit. Because thousands of first-order entities will come together and create an effect that will reduce entropy. Therefore, societies and communities, which are second-order cybernetic entities, are accepted as ethical entities of the information age. Cybernetic societies or communities exhibit a collective consciousness in situations that are difficult to overcome. This is a structure that makes the ethical development and life of humanity possible. Because as Aristotle pointed out, man is a social being (Aristotle, 2009, 1253a). Bynum said that;

''…when people join forces in communities, their ability to produce and acquire meaningful knowledge and live fulfilling and meaningful lives increases exponentially. Therefore, the development of such human communities is a very good thing indeed. They make life deeply fulfilling and significantly reduce local evils such as death and disease, chaos and disorder.'' (Bynum, 2006, 170)

While traditional philosophical approaches focus on the ethical responsibility of individuals who make up society, in the philosophy of information, ethical responsibility is discussed not only on humans but also on information technologies. We can give as an example artificial intelligence and ethical issues, which are among the most controversial issues of our day.Ethical agencies are on the agenda for solving problems that arise in machine-human interactions, such as virtual chat rooms, distance education, and banking transactions. In other words, systems that make decisions instead of humans should also be designed ethically, process the data they use with ethical methods, and should not produce results that will manipulate people. Artificial intelligences, which are frequently used, should also be produced ethically. Ethical principles should be integrated into artificial intelligences in the construction of an ethical society. These machines should be suitable for the nature and cultural environments of people and society, and should have principles that support their development. In their article titled *Flourishing Ethics and identifying ethical values to instill into artificially intelligent agents*, Kantar and Bynum have determined the principles to be considered in the design of artificial intelligence, which are members of the information society, as follows;

'1-'Autonomy': This principle means that an individual in the information society should not be under pressure or control, even through technology. Because if a person is seriously pressured and controlled by others, he cannot express his will and meet his need for freedom that is in accordance with his nature.

2- The ethical development of people should be supported in the information society. They should socialize in real life and not live a life that is not isolated from society. No matter how advanced information technologies are, people need to continue their healthy relationship with society outside of the virtual. Also, psychologically, humans need each other to avoid loneliness and feelings of isolation.

3- In the information society, security, information, opportunities and resources should be accessible within reasonable limits. If this does not happen, people will be able to make wrong choices in solving their individual and social problems, which will hinder the development of the information society and the individual.

4. To maximize flourishing within a community, justice must prevail. Consider the traditional distinction between "distributive justice" and "retributive justice": if goods and benefits are unjustly distributed, some people will be unfairly deprived, and flourishing will not be maximized. Similarly, if punishment is unjustly meted out, flourishing, again, will not be maximized.

5. Respect—including mutual respect between persons—plays a significant role in creating and maintaining human flourishing. Lack of respect from one's fellow human beings can generate hate, jealousy, and other very negative emotions, causing harmful conflicts between individuals—even wars within and between countries. Self-respect also is important for human flourishing in order to preserve human dignity and minimize the harmful effects of shame, self- disappointment, and feelings of worthlessness.' (Kantar - Bynum, 2022).

3. Ethical problems in information society

With the developments in cybernetic science and information science, many ethical problems have emerged in the society that has been shaped by the global structure. As we have stated before, the issues that were initially considered as ethical problems of cybernetic societies have taken place in academic literature as ethical problems of information

societies with the developments in information technologies. In her article '*The Computer Revolution and The Problem of Global Ethics*', Krystyna Gorniak-Kocikowska states that new ethical theories should be developed to guide cyber-societies formed by remote work and virtual reality, telemedicine and the world of cyberspace relations (Gorniak-Kocikowska, 1990). Because communication tools such as computers have no geographical boundaries and will have a serious impact on the demographic structure of societies.Thus, she emphasizes the necessity of a broad ethical perspective that embraces information societies and enables each other's ethical and cultural lives within this unlimited interaction. It will not be surprising to encounter different ethical problems in the borderless society model created by cyber technologies. Information society is a global, diverse and multicultural reality (Hellsten, 2007, 4). It is possible to list the ethical problems of information societies as follows:

i. Epistemic value problems in unequal local and global access to information (Fallis, 2007).

ii Digital divide: the problems of the digital divide that emerge between the information rich and the information poor, the connected and the disconnected, the developed and the less developed (Hellsten, 2007).

i. Social justice problems. ?

ii. Ethical problems related to the inadequacy of technological infrastructure in undeveloped countries or underdeveloped countries.

iii. Legal problems in the distribution and implementation of global IT policies.

iv. Ethical problems related to the commercialization of information and knowledge, neo-liberal or libertarian market rationality focused on economic and technological development.

v. The problem of cultural and local sustainability of technology in the "information society" or "global wisdom village".

vi. Ethical problems concerning human rights in the information society (Hellsten, 2007), problems related to the protection of moral rights related to intellectual property (Himma, 2007).

vii. Ethical problems related to the values and goals of societies in maintaining their cultural independence.

viii. Ethical problems regarding the dissemination of information towards strict homogenization in the information society and ethical approaches encompassing the information society, ethical challenges regarding privacy and data confidentiality protection (Ess, 2007).

ix. Injustice caused by the difficulties in accessing information by disabled individuals in the information society, the effects of the internet on democracy (Kantar, 2024, 121).

x. Ethical problems caused by the inadequacy of "computer literacy" in societies that do not have sufficient access to computers and network structures (Hongladarom, 2007, 108).

xi. Children's safety and risks on the internet, which constitutes the network structure of information societies.

4. Are intelligent systems the enemies of the information society?

There are also criticisms of the intelligent technologies of the information society. In her article titled *Digital Hyperthymesia on The Consequences Of Living With Perfect Memory*, Tanne van Bree draws attention to David Brooks' theory of 'the outsourced brain'. According to Brooks; The advanced technologies of the information age, which should enable us to know more, actually enable us to know less. Silicon memory systems, collaborative online filters, algorithms that guide consumer choice, and networked information systems provide humanity with only external cognitive servants (Bree, 2016, 30). This is one of the major problems of the information society. Indeed, in biology and philosophical disciplines, the only feature that distinguishes humans from other species is their intelligence. It is thought that the use of a technology that leaves the human mind idle is an obstacle to the development of information societies.

In her critique, Bree states that, contrary to our traditional understanding of the relationship between human memory and knowledge, we have begun to see 'information' not as a blessing that nourishes human existence and culture, but as a burden on human memory. She draws attention to the fact that excessive use of information technologies such as artificial intelligence, memory cards, and intelligent decision support systems may cause us to lose as well as gain.

Many smart technologies that we use today are tools that have somehow entered the life of the end user (non-producer). Technology producers usually focus on the economic benefit value of the product. The social and ethical consequences of a technological product usually emerge when we face problems (Janssens, 2016, 9). Therefore, most of us are actually exposed to technology, and our need for its ethical sensitivity is an indisputable truth as much as our need for its pragmatic benefits. The information societies of the rapidly changing and digitalizing world also get their share of it. Although we are late in discussing the ethical implications, we are not at the end of the road for humanity. Information societies need to be strengthened with ethical equipment both during the design phase of technologies such as artificial intelligence and during their use. For this, we should exert the effort we show in the context of producing high technology for the ethical construction of the information society. The other question is; are we willing enough for ethics that does not have a pragmatic commodity value, even at the cost of abandoning the full capacity of the blessings of the information world?

On the other hand, Rinie van Est and Lambèr Royakkers, who draw attention to the critical dimensions of technology, state that robots touch the intimate points of our lives in actions that replace humans (elderly care or sexual content). They state that in addition to the benefits they bring, they can limit our freedom and cause us to lose our humanity. They state that robot technologies that dehumanize society have a serious impact on humanity. However, moral principles are needed to reduce this impact. They express their concerns that robots can be an ethical threat (Est - Royakkers, 2016, 44-48). For this reason, they oppose a dehumanized information society.

5. The search for solutions to the ethical problems of information society

Wiener (Wiener et al., 2019, 40), who defines the effect and power of cybernetic science as "dark satanic mills", predicts the possible future as "disaster" if humanity is defenseless and careless against automatons (Wiener, 1964, 296). According to Wiener, information society should be strengthened with ethics, otherwise a dark future awaits humanity. Because in the interaction between humans and machines, machines would produce faster results against the slowness of human actions (Wiener, 1960, 1355) and would harm the natural texture of society and humans.

According to Wiener, humans are first-degree cybernetic beings with communication, control and feedback features, and the environment in which this cybernetic nature can realize itself is the second-degree cybernetic being, cybersociety. If humans access 'sufficient information' in this cybernetic environment, they will have the opportunity to develop ethically. Therefore, every individual living in the information society is responsible for the construction of an ethical cyber society on behalf of humanity. According to him, the information society should have the 'Great Principle of Justice'. The ethical principles that construct justice in the information society are as follows:

'The Principle of Freedom, The Principle of Equality, The Principle of Benevolence, and The Principle of Minimum Infringement of Freedom' (Bynum, 2006, 163)[6].

Charles Ess, who makes suggestions about the solution of ethical problems of information society, draws attention to ethical pluralistic approaches in order to overcome ethical problems of information societies. According to him, ethical pluralistic approaches will serve as a middle way in the face of the diversity of cultural differences.

'It seems fair to say that ethical pluralisms of the sort described here in both theoretical and practical terms are important devices and strategies for an information ethics that seeks to be genuinely global ethics—that is, an ethics that intends to discern and articulate (quasi-) universal norms that at the same time reflect and preserve the distinctive ethical norms and approaches that deine cultural identities. In doing so, such ethical pluralisms are to be recommended as they thereby meet the demand of justice to recognize and respect the basic integrity of diverse cultures'. (Ess, 2007, 86)

Luciano Floridi states that as an information society where we have started to accept the virtual as partly real and the real as partly virtual, and where we live in the infosphere of the cyberspace with all aspects of our traditional life from marriage to education and health needs, it is data and information that shape our lives. While evaluating the universe as the sum of information objects that interact dynamically with each other as the "infosphere", he sees the information society as a part of this atmosphere. He accepts people, artificial agents and other physical objects as secondary information entities. Families, organizations, companies, communities and governments that constitute

6 According to Wiener, he or she or information society needs (1) "the liberty of each human being to develop in his freedom the full measure of the human possibilities embodied in him", and (2) "the equality by which what is just for A and B remains just when the positions of A and B are interchanged", and (3) "a good will between man and man that knows no limits short of those of humanity itself", and finally (4) "what compulsion the very existence of the community and the state may demand must be exercised in such a way as to produce no unnecessary infringement of freedom" (see Wiener, 1950, 112-113).

the information society are accepted as the dynamic objects of the infosphere (Floridi, 2014, 218). This structure, which is in the dynamic flow of information, also forms the starting point of our activities in the information society, including ethical issues. Information technologies are structures that coordinate the flow of animate and inanimate data and make inanimate intelligent objects interactive with us and with each other. Exchanging data wirelessly with products in our homes, controlling cars, and performing surgeries with autonomous vehicles are the achievements of the information society through information technologies. For this reason, it is possible to define information technologies as the architect of the information society.

Floridi emphasizes that since we cannot give up the entertaining effects of information technologies on our lives, there is a need for a universal environmental ethics in coping with the new ethical challenges posed by the information world. This ethical approach should be an approach that considers all forms of existence and behavior, including those based on artificial, synthetic, hybrid, and designed works, as authentic, without privileging the natural or untouched. Floridi states that an ethical approach that includes machines such as artificial intelligence, since they are a part of the infosphere, without making any distinction between organic or inorganic, would be suitable for the structure of the information society. This should be an e-environmental ethics for the entire information sphere (Floridi, 2014, 217-220). The information society, as a neo-production society, is a society where the raw material is data and information (Floridi, 2014, 218). According to him, it will be necessary to search for the ethical requirements of the information society within the basic arguments of information ethics. With this approach, the American philosopher Terrell Ward Bynum has a new ethical approach to the ethical problems of the information society that includes Ess's pluralistic ethical understanding and Floridi's environmental ethical approach.

Drawing attention to the negative impact of human nature on technologies such as artificial intelligence, intelligent systems, and the Internet of Things (IoT) that can make decisions instead of humans, Bynum emphasizes that the development of human nature in the Aristotelian sense should be supported in the information society. As a first-degree cybernetic member of the information society, humans should not ignore the ethical equipment that will protect their nature in the intense interaction they experience with technology. For this, it is not enough for humans to have this ethical equipment, but also that information technologies such as artificial intelligence should be developed with this ethical equipment, as well as society. In the two-part ethical approach: The first type is Human-Centered Flourishing Ethics, which recognizes the dignity and worth of human beings as the top ethical values. The second type is General Flourishing Ethics, which continues to keep human worth and dignity at the top, but also acknowledges the intrinsic ethical value of other existing entities.

In his article "**Flourishing Ethics**", Bynum explains the foundations of his ethical understanding as follows

'I call the new theory 'Flourishing Ethics' because of its Aristotelian roots, though it also includes ideas suggestive of Taoism and Buddhism. In spite of its roots in ancient ethical theories, Flourishing Ethics is informed and grounded by recent scientific insights into the nature of living things, human nature and the fundamental nature of the universe—ideas from today's information theory, astrophysics and genetics. . .' (Bynum, 2006, 157).

Bynum's Flourishing Ethics assumes that people in every culture share a common human nature, and also that human flourishing is the highest ethical value. These assumptions, taken together, yield a set of ethical values and principles that apply to every human being in every culture. In addition, since individual cultures and subcultures typically include culture-specific values and traditions, human flourishing within a given culture can depend also upon the culture-specific values of that culture. So Bynum's Flourishing Ethics accommodates culture-specific values when they do not harm human flourishing elsewhere. In this respect, we see that his theory is in agreement with Ess's pluralistic ethical approach in dealing with the ethical problems of the information society.

Another ethical theorist who is interested in the ethical problems of the information society is James Moor. What distinguishes James Moor from other ethical theorists is his emphasis on developing ethical policies to overcome the problems as well as ensuring the ethical development of the information society. Because, according to him, the information society is dynamic, variable and in a constant flow of information with new information like technology. We can see this dynamic structure in advanced technologies such as smart phones and computers that are updated every month. Based on the dynamic structure of the society and information technologies, Moor seeks the solution in policies that include ethical inclusiveness. The information society should produce ethical policies for the ethical development of the individual and itself. Moor argues that we need information processing policies that prioritize and support human well-being. (Moor, 1999, 66).

Moor states that while seeking solutions to the ethical problems of the information society from the consequentialist justice approach, we find common ground in terms of our ethical needs despite our differences. According to him;

'At the core, humans have similar kinds of values, i.e., what kinds of things they consider to be goods (benefits) and what kinds of things they consider to be evils (harms). In general the core goods include life, happiness and autonomy and the core evils include death, unhappiness, and lack of autonomy....Obviously, humans do not share all their goals in common. But no matter what goals humans seek, they need ability, security, knowledge, freedom, opportunity and resources in order to accomplish their projects.' (Moor, 1999, 67)

international civil organizations that carry out social and scientific activities also have ethical responsibilities. Institutional structures also assume responsibility in the ethical construction of the information society. UNESCO, which carries out international cooperation activities in the fields of education, art, science and culture, prepares reports on ethical information society with conferences, seminars and scientific meetings on the basis of the member states of the United Nations in the field of development of Information Society Policy modules based on National Information Society Policy Templates within the framework of the Intergovernmental Information for All Program (IFAP). In the policy development studies carried out on the determination of the ethical principles of the information society; a common ethical perspective is being developed on the ethical criteria such as transparency and respect for human rights, independence, accuracy and reliability of information in the information society (UNESCO).

Conclusion

There is no doubt that information technology studies that facilitate human life, such as artificial intelligence and intelligent systems, and increase economic and cultural wealth mean progress in societies. Information supported by scientific, ethical and universal values should be made a common value for all humanity, it is important to remove the monopoly of only one community and reach wider social segments. In order to achieve this, we need to have technological equipment, as well as knowing the philosophical arguments of this technology, and developing an ethical perspective within the framework of cultural and common human values. As has been the case throughout history, ethical studies that make human life meaningful are of vital importance in this respect. For this reason, in here primarily attempts to shed light on the cybernetic structure of the information society. An attempt was made to present a general framework about ethical problems, along with the definition of the information society and the principles it is based on. Information was provided about ethical approaches to the ethical equipment needs of the information society in the world. Each society's own cultural and ethical values are the building blocks of its civilization. . In our world shaped by the information revolution, it is our responsibility not only for our country but for all humanity to reveal the approaches belonging to our own cultural codes that will ensure the high welfare of information societies. As a matter of fact, countries are responsible for building future generations within the framework of their own scientific foresight. As a philosophical activity, ethical studies have sufficient wisdom to serve such a purpose in the information age. Beyond the problems of the industrial revolution, the information revolution, which has an accelerated pace of change and transformation, affects societies in this respect. It is necessary to read and evaluate the ethical needs of the information society in this context.

Of special interest in today's world is the growing number and complexity of information technology devices like robots, softbots, and chatbots. Such devices sometimes make decisions and carry them out without human intervention. At the present time (late 2024) people worldwide are especially concerned about artificially intelligent chatbots, which can learn from their "experiences" and change their behavior in unexpected ways. Therefore, the information society should be strengthened with its ethical and cultural dimensions. As the society of the future moves towards more digitalization with the development of advanced technologies, it is certain that we need to think more about ethics, considering that ethical problems and traditional understanding of society will change more.

As early as 1948, in his book *Cybernetics*, Wiener began to express his ethical concerns about the new information technologies that he and his colleagues were creating; and, in 1954, in his book *The Human Use of Human Beings*, Wiener warned that "The choice of good and evil knocks at our door!" because of machines that can learn and make decisions on their own. (Wiener, 1954, 185) This "knocked door" is not only the "door" of a single community, but of the common future of all humanity! Today's technological advances confirm Wiener's predictions that automation will eliminate many jobs and that this will cause social tensions.

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