THE DEVELOPING PROCESS OF TECHNOLOGICAL RATIONALITY AND ITS HUMANISTIC RELATION

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ABSTRACT: Technological rationality is a core concept in the philosophy of technology. Scholars in different fields conduct multi-dimension and multi-level researches of technological rationality concerning this concept, covering aspects of western humanism, technological pessimism, postmodernism, as well as empiricism and epistemology, and Marxist thought of technology. In this article, the author demarcates the development of technological rationality into three stages: implement rationality, operation rationality and value rationality, discusses the representative viewpoint in technological rationality—technological pessimism, comes up with the opinion that technological rationality should be examined from humanistic perspective, and points out that future technological rationality will be the unity of implement rationality and value rationality.

KEYWORDS: Technological rationality; Marxism

DEVELOPMENT STAGES OF TECHNOLOGICAL RATIONALITY

Studies of technological rationality abroad started earlier, which began since Max Weber differentiates rationality into implement rationality and value rationality. Herbert Marcuse, the representative of Frankfurt School, is the first to establish the concept of technological rationality, and equates it with Weber's implement rationality(Marcuse, 82). Whereafter, western humanists including Habermas, Heidegger and Mumford, postmodernists including A.N.Whitehead , David Griffin, Foucault and Ferre, and modern technological critics including Rapp, Feinberg and Neo-Luddites also follow this tradition to deeper analyze and criticize technological rationality (Zhao, 86).

The author believes that the generally accepted theoretical premise of

Marcuse's technological rationality is questionable and needs to be reexamined. In Marcuse's opinion, technological rationality is implement rationality, which is the opposite of value rationality, and the strengthening of technological rationality must lead to the weakening of value rationality. According to the existing research logic, it's natural to deduce that technological rationality is the chief culprit of all kinds of problems of modern industrial society, and is supposed to criticize, limit and even deny. This logic not only makes the theoretical grasp of technological rationality tend to be easier and one-sided, but also causes practical confusion.

THREE DEVELOPMENT STAGES OF TECHNOLOGICAL RATIONALIZATION

Following the approach of Marxist historical materialism, this paper discusses the rationalization stages and the rich meaning of technology in modern society, demarcates the development of technological rationality into three stages— implement rationality, operation rationality and value rationality according to the substantive characteristics and manifestation of technology.

IMPLEMENT RATIONALITY

Implement rationality, a kind of objective rationality opposite to value rationality, is first put forward by German sociologist Max Weber when he investigates western modernity in the early twentieth century. In Weber's study on modernization, he describes the historical process of modernization as rationalization, and elaborates its structure and how it is manifested in western modern cultural concepts and institutions. Weber says that this kind of rationality is means-end rationality. The instrumentalization of rationality is due to the change of view of nature, namely the change from Aristotle's purposeful view of nature to modern science's mechanistic view of nature. This change makes value lose its existential objectivity, and can only be given by people's subjectivity. In the world, which is a collection of matters and phenomena connected by causes and effects, this change leads to the logical isolation of facts and values (Weber, 211). Since value does not exist in the world, but only is decided or created by personal or collective subjectivities, therefore, it has almost no objectivity and universality. The most typical functions of rationality are to reason

and compute; thus, rationality's functions can only be implemental. Western economics represents typical implement rationality by taking benefit maximization as principle.

OPERATION RATIONALITY

Operation rationality is a kind of procedural rationality that embodies and actualizes implement rationality. The meaning of operation rationality is to effectively achieve an anticipated goal by setting up a program or a plan through logic thinking, regardless of whether it is ethical or not. For example, how to successfully clone a man is the only consideration in human cloning, no matter it is ethical or not. Operation rationality provides means, but is not able to judge the goal.

Operationalism, created by an American physicist named Bridgman in the1920s, reveals some characters of operation rationality. Operationalism regards the proposition and establishment of scientific concepts and theories as the results of operation, therefore concepts that cannot be operationally analyzed are meaningless. The concept "operation" brought up by Bridgman mainly includes experimental operation, instrument operation and tool operation, all belong to physical operation. Although mental operation and speech operation are also included, but mental operation submits to physical operation. Operationalism is the extension of pragmatism and positivism (Luo,21).

The operation rationality proposed here, means a collection of operational programs, approaches, and modes that carry out disenchantment in order to achieve a certain goal and fulfill the rationality and purposiveness of implement under the guidance of implement rationality.

VALUE RATIONALITY

Value rationality is a kind of subjective rationality opposite to implement rationality, showing ultimate care and value guidance in social operant behavior. Human's rationality cannot give up exploring ultimate value, during which rationality is involved when seeking for the universal principle of value. And the rationality involved is value rationality. It regards value care as the core of judgement, and injects subjective value selection into purely objective operation rationality.

THE CONTRADICTION BETWEEN IMPLEMENT RATIONALITY AND VALUE RATIONALITY AND ITS CAUSES

When Max Weber divides rationality into implement rationality and value rationality, their epistemological opposition of subject and object manifests absolute isolation at realistic level, namely the rationality of implement and the irrationality of value. Implement rationality tries to revert the universal validity of principle to the objectivity of law, and takes the validity of actual operations in natural science and engineering technology as testing criterion. It is obvious that the great success of industrialization and technological revolution is a clear proof of implement rationality's power. However, reverting the universal validity of principle to the objectivity of a certain object proves to be logically impossible. Appropriation in form is not equal to appropriation in value, similarly, appropriation in value is not equal to effectiveness. This contradiction places modern society in a dilemma in many aspects, such as the contradiction between market economy and planned economy. Market economy is vigorous, but lacks moral value due to the pursuit of benefit maximization; while planned economy ensures appropriation in value, but leads to economic stagnation. Besides, there are also the contradiction between developing the economy and protecting the environment, between increasing efficiency and ensuring fairness, between increasing welfare and spawning laziness, between strengthening medical care and social aging. The main reasons that lead to the rationality of implement and the irrationality of value are:

THE DIFFERENCE BETWEEN JUDGEMENT STANDARDS

Implement rationality follows the principle of the objective rule, and pursues regularity and economic utility. While value rationality follows the principle of perceptual rule of subjectivity, and pursues overall harmony and existential satisfaction.

A SHIFT IN EMPIRICISM

Before European Enlightenment, as implement rationality's philosophical ground, empiricism is regarded as a philosophical tradition that is opposite to rationalism. While here, empiricism is the only representative of rationality in the name of implement rationality.

THE INSTRUMENTALIZATION OF OPERATION RATIONALITY

Implement rationality and value rationality is a pair of subjective and objective rationalities, and operation rationality is the practical rationality that connects them. However, in the process of realizing implement rationality, operation rationality only follows the instrumental comprehending of rationality but is away from the call of value.

THE MISPLACEMENT OF TECHNOLOGICAL MEANS AND HUMAN GOALS

In modern technological society, human needs and goals are melt in the technological goal of pursuing economic growth. The goals of technological activities become fulfilling and achieving every technological process.Human become means of achieving goals of technological goals instead, which leads to the complete break of implement rationality and value rationality.

Since Nietzsche announced that "God is dead", value nihilism becomes increasingly prominent. As a result, theinstrumental comprehension of rationality becomes people's basic mind-set. The instrumental comprehension of rationality means conceptually deny rationality's position in value judgement. It seems that only implement rationality is dominant in the waves of modernization, making "age of rationality" become synonymous with "age of science and technology". After World War II, technological determinism swept across all aspects of humanistic and social science. Technology is either publicized as the emancipatory and constructive progressive force (technological optimism) or denounced as the destructive force which leads to cultural crisis (technological pessimism). Economic determinism always appears in the name of technological determinism, which determines what kind of value should be inherited through its relationship with technology. Value is not the inherent value criterion of human life here, but the lubricant served for implement rationality, making rationality cannot bypass the operation of implement rationality and directly work on value.

In this way, technological rationality regulates the process of modern civilization, and technocracy gradually rises. Technological rationality increasingly shows senses of power politics and culture corrosion, meaning that human spirit and society are entirely enslaved to technological thinking. In

addition, the socialization of technology and the technicalization of society also help technological rationality dominate social development and human history. Meanwhile, misfortunes and disasters come along with human civilization. Heidegger (934) said, where there is danger, there will be the power to save. In the 20th century, making reflections and criticism on technological rationality became a sacred mission of ideologists, among whom ideologists of humanism, Frankfurt School, ecology protectionism, the Club of Rome and postmodernism are the most prominent ones. During this process, there is a mental disposition that shows unsatisfactory with realities, uneasy for modern science and technology and concerns for human future becoming increasingly strong, and gradually develops to a powerful philosophical ethos. This is technological pessimism.

THE MODERN MANIFESTATION OF TECHNOLOGICAL PESSIMISM AND ITS ENLIGHTENMENT

Technological pessimism is a term that often used in recent years. Suspicion, denial and criticism on technology have a long history, such as Taoism's despise on technology in ancient China and Rousseau's opinion "returning to nature" in modern west. It is in 20th century that these thoughts really had great influence on people's value and behavior tendency and social choices. Technological pessimism uses a negative and irrational way of thinking to criticize technology, revealing the negative effects of technology controlling, repressing and enslave human. The author here analyzes several manifestations of modern technological pessimism from perspectives of rationality, humanism and reality.

THE MODERN MANIFESTATION OF TECHNOLOGICAL PESSIMISM: CRITICISM AT RATIONAL LEVEL

Hegel once said, rationality is the soul of the world, as well as the inherent, immanent and profound nature which construct the world. Rationality is the interior quality that helps civilization rise and extend. Rationality establishes its authority through admiration for science and technology, and dominates the world in the name of technological rationality before the 20th century.

Criticism at rationality level mainly reflects in criticism on technological rationality, and the main representatives are Max Weber, Marcuse

and Ellul.

In the early 20th century Max Weber divides rationality into implement rationality and value rationality. According to the changing differences of civilized society, Weber believes that implement rationality is playing a more and more important role in capitalist society and its industrialization, becoming the opposite of value rationality, and will eventually replace value rationality and be the dominate rationality.

Marcuse, the representative of Frankfurt School, regards Weber's implement rationality as technological rationality, which is formed based on instrumental rationality. Marcuse thinks that technological rationality turns the rationality of techniques into the rationality of politics through material satisfactory, and consequently becomes an effective social control method. By making false needs, it enslaves people on the cost of people's freedom. Advances in technology means the expansion of slavery. The results are that human turn to be one dimensional men without criticalness and opposability and only to meet material needs, while society turn to be one dimensional society with no opposition faction or opposite thoughts.

If Weber and Marcuse criticize technological rationality from its external characteristics, then French scholar Ellul puts forward his doubts from the internal characteristic. In Ellul's opinion, modern society is technologically autonomous; and the so-called process of technological rationalization is a process which technological autonomy develops. It becomes a reality, self-sufficient with its own determinations. "Because of the autonomy of technique, modern man cannot choose his means any more than his ends." And technological autonomy is opposite to human nature. The more technical activities are in society, the less autonomy and initiative people have, since the effectiveness of technological rationality leads to the loss of freedom and value, therefore the more powerful technological rationality is, the more disastrous people's loss will be (Ellul, 134).

VOICE OF HUMANISM

During the first half of the 20th century, there are many scholars showing pessimism on civilization, technology and modernization within the perspective of humanism.

Maritain is the first to express his worry about human destiny in atomic age. He says, sufferings that cannot get rid of has come when people grasped atomic technology. The arrival of atomic age suddenly makes people all over the world realize the seriousness of this problem. People do not believe that science and technology can guarantee human progress and happiness by itself. When a man sees the destruction and disasters brought by science and technology, his heart is filled with fear (Maritain, 412). The only way to survive for human and the world is to give up science and technology, and go back to the religious world.

Spengler regards civilization as the inevitable destination of culture, which is the product of the collapse of culture. Every advanced culture is a tragedy, and the root of tragedy is the increasingly powerful and mysterious scientific and technological activities. The splendid technological achievements of the west not only did not help people get rid of sufferings, instead, brought more wars, exploitations, starvation and unemployment, all irrepressibly lead to the end of the west. He predicts that western civilization will vanish in 2200.

Heidegger's doubts about technology comes from his questioning to technology and the reveal of the essence of technology. He believes that no matter how strongly we confirm or deny technology, we are always uncontrollably restricted to technology. However, the worst thing is that we become technology's slaves when we think technology is neutral. People nowadays are particularly dedicated to this opinion, for we cannot see the essence of technology(Song, 51). Heidegger understands technology as "framework", meaning a way of manifestation. In the age of technology, humans are completely enslaved to the technological framework, and act upon the need of technology consciously or unconsciously. The dangers human faces come from that human taking calculated thoughts as the only thinking activity and the utility of science and technology as the only standard to measure everything, turning humans from "rational anima" into "technological animal". Heidegger emphasizes that technology is essential something that humans cannot control on themselves. If human do not want disasters brought by technology's violent movements, they should turn to themselves and get rid of the framework, which is almost impossible.

CONFLICTS AT REALITY LEVEL

In the 1960s and 1970s, a vigorous environmental movement rose throughout the world as global issues emerged. A large number of scholars including scientists, philosophers, ecologists and writers joined the ranks of condemning industrialization, modernization and science and technology. Since the Club of Rome published the report named *The Limits to Growth*, technology pessimism has stepped out academic circle and been known by public through its fight against modernization and industrialization.

The Limits to Growth is the first and the most influential report submitted by the Club of Rome. Through analyzing the most crucial parameters of human destiny, Meadows and other scholars draw the following conclusion: the basic behavioral pattern of this world system is the exponential growth of population and resources, following by the collapse. In order to avoid disaster, this report proposes the solution of "zero-growth economy" or "global equilibrium". The limits-to-growth proposition causes a huge storm all over the world. Although subsequent reports continually revise the proposition's views, technological pessimism already stand like a banner. It directly influences the public condemnation and actions against the negative effects of technological application of ecological criticism, Greenpeace and even Green Party.

And more notably, postmodernism, born in the latter half of the 20th century, shows a total tendency towards technological pessimism. As one of the modes of thinking that against modernity, it rejects modern technology and modern mechanistic world view based on it, criticizes subject-object dichotomy and anthropocentrism based on it, discards rationality and the resulting basis of realism, and uses "destroy", "dispel" and "game" to illustrate the meaning of life. David Griffin (31) points out that we must abandon modernity, or most of lives on earth and us will not escape the destructive fate. Morris Berman believes that the subject-object dichotomy not only does not prevent but facilitates the unprecedented division, nihilism and the birth of destruction. H.P. Segal, editor of *Technology Pessimism and Postmodernism* proposes that technological pessimism plays an important role in postmodernism culture as an organic component (Ezrahi et al., 1994).

Two international seminars organized by US and Israel with topics on "technology and pessimism" and "technological pessimism and postmodernism"

in 1979 and 1992, the founding of electronic journals of *American Philosophical and Social Society* and *Techne and Technology and Human Responsibility* in 1995, and the appearance of Neo-Luddism, all reflect the modern rise of technological pessimism and people's great concern about it.

SEVERAL ENLIGHTENMENTS FROM TECHNOLOGICAL PESSIMISM: TECHNOLOGICAL PESSIMISM REFLECTS TECHNOLOGY'S STRONG POSITION IN THE HUMAN-NATURE RELATIONSHIP

There are two significant factors affecting the change of human-nature relationship, one is the space and range of human practice, and another is the realization degree of technological functions. The space and range of human practice mainly depends on human's dependence and usage degree of natural resources, which shows more about the adaptation to nature; while the realization of technological functions mainly depends on the improvement of people's cognitive abilities and the change of technology's role as intermediary agent in human-nature relationship, which shows more about the transformation of nature. These two factors already become one in modern civilized society; that is to say, technology has become the determinant in modern human-nature relationship.

As technology rising as a global power, it leads to the rise of artificial nature and technological sphere and the overall expansion of technological society. The rise of artificial nature and technological sphere embodies technology's effect and function on human-nature relational structure, while the overall expansion of technological society represents technology's effect and function on human-society relational structure. On the one hand, we can see that all existing things are branded by the essential domination of modern technology; on the other hand, we cannot avoid that the two worlds we live in—the inherited biosphere and the created technological sphere—have lost their balance and been in conflict. Therefore, the overall expansion of modern technology and the establishment of its dominant position lead to the crisis and worsening of human-nature relationship. Under such background, technological pessimism appears with the starting point and goal of harmony between human and nature.

TECHNOLOGICAL PESSIMISM ESTABLISHES THE FOUNDATION OF SUSTAINABLE DEVELOPMENT THEORY

It is known to us that global issues including global warming, population boom, species extinction, resource starvation and the development gap between the North and the South are first proposed and studied by the Club of Rome. It is also the Club of Rome who primarily reveals and criticizes the disadvantages and hidden danger of traditional development view which regards economic growth as the core concept. Although the solution "zero-growth economy" proposed by the Club of Rome is not feasible, the limited resources proposition, environmental value theory and social coordination theory are the theoretical basis of sustainable development theory.

TECHNOLOGICAL PESSIMISM EMBODIES THE CULTURAL TRAITS OF HIGH-TECH SOCIETY

F. Rapp points out that technology is a complex phenomenon, which is both an application of natural force and a sociocultural process. The discuss on technology can focus either on technology or on social culture. Since technology is a cultural phenomenon, technological pessimism is a negative reflection on technological culture.

Technological culture is human's examination and reflection on human activities. It uses technology as a "language" to redescribe human's living environment and explain the evolutionary process of human. Therefore, technological culture shows notable regional, national, contemporaneous, diverse and comprehensive characters.

Due to the relevance between technology and culture, technological crisis will inevitably lead to cultural crisis, including belief crisis, moral decline and loss of personality and freedom. Technological pessimism reveals technology's distortion on culture by criticizing it, making technological pessimism itself a philosophical cultural thought. We should not be limited to its attitude towards technology, but regard it as a cultural phenomenon.

HUMANISTIC CONSIDERATION OF TECHNOLOGICAL RATIONALITY AND ITS FUTURE FATE

As pointed in the last part, people used to criticize technological rationality from

the angle of technology's instrumental tendency, and neglect the consideration at cultural level. Analyses at cultural level indicate that, conflict between human nature and physical property shows the contradictory relation between human and technology; also, the humanistic significance of technological rationality is rooted in the internal connection of technological rationality and humanistic significance; and keep the balance of internal tension of technological rationality is the basis of coordinating human-nature relationship.

HUMAN NATURE AND PHYSICAL PROPERTY: A PAIR OF CONTRADICTIONS BETWEEN TECHNOLOGY AND HUMAN SURVIVAL

In actual life, it is not difficult to notice that there are often various conflicts between technology and human survival, need and development, which can be regarded as conflict between human nature and physical property after all. It often manifests as the discord between natural technology property and natural humanity.

There is no doubt that technology can cast great material effect on human. Technological means (such as machinery) system and products of technology (both products and by-products, such as pollution discharge system) all belong to artificial object—it comes from nature but is different from natural object; it is the dissident force in natural motor system. When adding into the natural system as unnatural object, artificial object will impose unnatural disturbance on the natural material cycle, conversion and movements, destroy the original harmony and balance, and even cause a certain degree of disorder. Human body, as a product of long-term natural evolution, has naturality itself. When it receives a variety of unnatural technological products, such as artificial food, medicine and pollutant, it will encounter unnatural variations more or less, and even morbid damages when the intake exceeds the threshold value. But with the development of technological level, people obviously can continually reduce the degree of technology's destruction on nature (including human body nature). For example, gene therapy of some diseases shows this prospect comparing to drug therapy. Moreover, people can also create expertise (such as environment protection technology) to make up for the destruction of nature caused by unavoidable industrial means. Humanity, making human into human, enjoys not only naturality, but also sociality, spirituality and other characteristics belonging to the

higher level of humanity. This higher level of humanity is more likely to clash with technology, which is at the physical level. For example, human get intertwined with tools when human want to use tool technology, and to some degree human (and humanity) should obey the tools (and physical property). This kind of obedience makes human suffer especially when humanity conflicts with physical property. From this, human feels the inhuman torture from tools with the affectional needs being covered by physical movements. Human's freedom and dignity are destructed, and under extreme circumstances human are turned into objects.

Conflict between human nature and physical property manifests itself as conflict between implement rationality and value rationality during the process of technological rationalization. "Capitalist use of machines" that Max talks about had brought miserable situation to workers. In order to reduce the negative effects of technology, on the one hand, technology should be constantly improved and perfected to be more consistent with humanity. For example, workers' physical sufferings are significantly relieved when automation techniques replace their direct operation on machines. If we give up the attempt or even step backwards on technology "to the natural state", then those sufferings will be aggravated. On the other hand, humans should be put in the position of being concerned and cared in technological system, their benefits should be safeguarded from the system to the greatest extend. Moreover, aggravated damages of technology property on humanity made by human should be reduced.

TECHNOLOGICAL RATIONALIZATION: THE PROCESS OF ASSOCIATING HUMANITY

From implement rationality to operation rationality then back to value rationality, the process of technology rationality's development process in some sense is the consideration of technological rationality's humanistic meaning and its humanistic relevance.

The rise of technological rationality starts from advocacy for science and rationality in Renaissance. Renaissance has an inestimable influence on the emergence of modern science. As Garin (216) proposes, if humanism rediscovers belief in human, human's ability and human's understanding of things, then new

ways of scientific experiments, innovative world view and new attempt to conquer and take advantage should also give the credit to humanism. Humanism provides a favorable moral and cultural atmosphere for science; thus, science cannot be separated from the advantageous humanistic background. Under such circumstances, scientific rationality which promotes science should have humanistic spirit, and technological rationality as its result also enjoys humanistic connotations.

In addition, the relevance between technological rationality and humanism also is shown in the technological rationality's contribution to human liberation. In the name of reviving ancient Greek and Roman civilization, humanist during Renaissance advocated science and democracy, promoted rationality and humanity, opposed religious superstitions and aimed at human liberation. Since they advocated science with the aim of human liberation, that is, to serve for their humanism theory, therefore, scientific rationality has an inseparable relationship with humanism.

The most important of all is that, as the current result of human rationality's development, technological rationality is destined to have the nature of human. Greek rationality is theoretical rationality, which is used to explore the mysterious nature, improve people's cognitive skills on nature, and understand the relationship between human and the world. Rationality is regarded as the essence of human at that time. Until the Renaissance, humanists opposed divinity and advocated humanity, making rationality recover to its nature of human. In modern times, scientific rationality develops along with science. Rationality is used to grasp the laws of world, and asks science to serve for human conquering and transforming the world, as well as creating abundant material civilization. In this stage, rationality's function is more practical rather than only understanding the world. Accompanying this practicability, technological rationality emerges and develops, which is the manifestation of human's "the will to power" to conquer the world. In short, no matter what form rationality is, it is fundamentally a part of human nature.

Rationality's relevance to humanism provides possibility for modern people to reflect technological rationality from the perspective of humanism.

MAINTAINING THE INTERNAL TENSION OF TECHNOLOGICAL
RATIONALITY: THE BASIS OF COORDINATING HUMAN-NATURE
RELATIONSHIP

Reflecting technological rationality from the perspective of humanism is
neither the elimination of technology which makes people return to natural state
or to "being" (said by Heidegger), nor the embrace with technology, which makes
technology do as it wants. It should advocate maintaining a proper internal
tension between implement property and value (humanistic) property when
rationality functions, therefore making nature and society develop harmoniously
and people develop freely.

Firstly, reflecting technological rationality from the perspective of
humanism aims at recover and propose its humanistic value, making
technological rationality remake nature within a moderate range and rebuild the
harmonious human-nature relationship. The attention to humanism does not
mean advocating anthropocentrism, but coordinating the development of
technological rationality with the meaning of human's being. To use
technological rationality, human constantly bring his subjective initiative into full
play on nature to acquire meaningful things for human lives and survivals.
During this process, only maintaining a harmonious human-nature relationship
can increase human's welfare, because it is the only way that human can develop
freely between society and nature. Anthropocentrism neglects the significance of
this free relationship between human and nature for respecting human value, for
it emphasizes that human should be self-centered for his survival and
development. Under the human-centered baton, technological rationality is
implement rationality which serves for human, with nature as its object to display
its power. In this way, nature becomes an infinite container to bear the force of
technological rationality. Therefore, reflecting technological rationality from the
perspective of humanism primarily requires the unification of human's naturality
and sociality. Human should respect the law of nature when remakes nature, not
only pay attention to the overall interests and ultimate value of human, but also
admit the interest of nature and its internal value, and seek for a harmonious
development. Secondly, we should correct the mistake of almighty rationality
proposed by technological rationality, restore human's original appearance and
establish a friendly cooperation between human and nature. In an age of

scientism proposing almighty rationality, people believe that all natural, cultural, social and historical phenomena can be included in the scope of science and their internal laws can be explored. While technology is the tool to solve all the problems, as people are tools subject to technology.

Technological rationality used to belong to human, however, its omnipotence makes it externalize as an objective instrument that has infinite power with autonomy and regularity. As an independent external power, technological rationality governs and dominates human, making human appendant of technology and causing human's alienation. Human are no longer the master of technology, instead become the salves. As Marcuse reveals, human become "one dimensional men". To reflect technological rationality from the perspective of humanism at this level, the aim is to recover the right relationship between human and technology by putting technological rationality under the guidance of value property, and therefore recover the original character of human and establish all various interpersonal relationships.

FUTURE FATE OF TECHNOLOGICAL RATIONALITY

In the background of modernity, systems as the representative of implement rationality seem to be all of rationality. However, if trace back to ancient Greek philosophy, we can find out that rationality mainly manifests as the exploration of rational foundation of the current value in Socrates's and Plato's opinions. They both comprehend human rationality first as value rationality.

Kant's presentation of practical rationality is to provide the basic rationality of ultimate value. In Kant's opinion, human regularizing their behavior morally to liberate themselves from the heteronomy of causality and put themselves in the realm of ends of human community to have the real freedom.

Max Weber distinguishes implement rationality and value rationality, but he does not make them contradictory. Instead, he tries to bridge their isolation. His greatness is that he puts forward the rational value of implement rationality. He thinks that "modernity" is "rationality", and the "process of modernization" is the "process of rationalization".

The author believes that implement rationality is the initial phase of value rationality, while value rationality is the accomplished implement rationality. There is neither pure implement rationality that is value-free nor pure value

rationality that is instrument-free. As two poles of technological rationalization, implement should develop to value rationality, and value rationality should be realized on the basis of implement rationality.

During the historical process of modern civilization, there are always two strong trends of thought that are opposite and complementary. One is scientism which worships science and the takes progress and development as realistic orientation; another one is humanism which pursues spirit and takes value and meaning as the eternal theme. If scientism and implement rationality are the driving system of modern society like engine and wheel, then humanism and value rationality are the control system like steering wheel and brake. If there's only the driving system and no control system, the society will stay put and stagnate, or lose control (Shulman, 60).

Value identification is the premise of technological rationality's manifestation. On the one hand, the flourish of cultural industry (such as automobile culture, screen culture and internet culture) are the cultural products of technological rationalization. It is the technological rationalization that makes culture show its diversity with high-tech, which reflects the real progress of society. On the other hand, the improvement of technological rationality from implement rationality to value rationality is the logic orientation of technology's essence, and the culture's internal requirement of technological rationality as well (Mitcham, 16).

CONCLUSION

Through analyzing the inherent evolutionary mechanism and the value orientation of technological rationalization, this article points out that the current task is not to criticize or deny technological rationality, but to devote great efforts to promote it and accomplish the transformation and improvement from implement rationality to value rationality. Therefore, regarding technological rationality as a developing rationality which contains implement rationality and value rationality but is more advanced than them, is a key to solving realistic problems, and also shows a bright prospect of the development of technological rationality.

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