

# *Challenges to New Economic Theory: Climate Change, the Fourth Industrial Revolution, Technology, and Global Values*

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**Abstract**—This paper explores the inter-relationship of technological signs and human values as they impact the future of humanity. This exploration emphasizes the role of human capital and human perspective as we confront the challenges of tomorrow, including climate change, the Fourth Industrial Revolution, and the development of a new and viable economic order for global governance. It also notes the inter-connectedness of human subjectivity in terms of positive and negative sentiments as important components of the re-thinking of science, technology, and global governance.

**Keywords**—climate change, Fourth Industrial Revolution, human subjectivity, values, New Economic Theory, global governance

## I. INTRODUCTION

As we view the contemporary socioeconomic and political scene, we observe at least three challenges that confront humanity. The first is the problem of climate change and global warming. This matter is given urgency because it is estimated that society has ten years to control global warming and to reverse the trend towards a remedy for the climate change problem. Without control over global warming, it is estimated that a global disaster is highly probable. The second major challenge confronting the global socioeconomic process is the rapid emergence of the Fourth Industrial Revolution, which represents a major change in which technology transforms global economic relations at every level. It is largely influenced by the connection of a multitude of technologies which integrate physical, digital, and biological contexts. This is referred to as the impact of technology—cyber-physical systems. The technological breakthroughs here encompass a number of fields, such as: artificial intelligence, quantum computing, nanotechnology, robotics, biotechnology, the industrial internet of things, fifth generation wireless technology, autonomous vehicles, and so on. These technologies challenge the economic foundations and industries of every nation. These changes seem to call for a

revolutionary transformation of entire frameworks of production, management, and governance.

## II. SCIENCE, TECHNOLOGICAL CHANGE, AND SOCIETY

Today we live in a world that is radically transforming itself. The dramatic technological revolution we are witnessing will profoundly influence the way social process works. The physicist Albert Einstein put the dilemma this way: “There are only two ways to live your life. One is as though nothing is a miracle. The other, as if everything is.” So dramatic have technological developments been that they challenge the traditional grounding of human identity, spiritual aspiration, and transcendental consciousness. First, we experience the radical transformations in communications and transportation technologies.

Communication has been compressed between human beings so that information is instantly communicated across the planet, and technological innovation in travel has radically compressed the distance of both time and space between human beings. Even more dramatic by the compression of time and space are the findings of modern quantum physics. First, quantum physics has disclosed the principle of “nonlocality”. In short, there is no measurement between subatomic particles as they influence their movements, even though they may be millions of miles apart. This notion may have dramatic consequences for the future of humanity and technology. In this quantum world the observation of molecules by humans results in the transformation of micro particles into waves. When observation ceases, they revert to the physics of micro particles. This has incredible implications for human consciousness and its capacity to influence the world outside of the human observer. Observation is a new challenge for science and technology.

Modern quantum physics has provided us with startling insights into human behavior and consciousness, science, and values. In the 1920’s, Heisenberg, one of the founders of

quantum physics, made a completely inexplicable discovery: when observing subatomic phenomena, he found that it was impossible to separate the observer from what was observed. The observer influenced the movement of the subatomic particles being observed. This means that the observe has a level of subjectivity that influences the object of observation. This is an uncomfortable conclusion for strict positive in science.

### III. HUMAN SUBJECTIVITY AND MODERN SCIENCE

Human subjectivity [1] in the form of perspective is a field that has largely been monopolized by the psychological sciences. Importantly, the field has also been dominated by religion. Today this sharp division has been eroded as the field of quantum mechanics has disclosed properties and insights of micro-particles and waves. The experiments in quantum physics confirm results that are sometimes described as “weird.” The results do not make sense in the world of cause and effect as objectively observed. One of the insights of quantum physics is the role of the observer in shaping the behavior of the particles observed. This has raised the question that human consciousness when focused on the particles has an influence on how the particles behave. In short, observational consciousness appears to be a form of participatory interaction. Experiments have shown that the cells of the body and the DNA communicate through this subtle field of energy that is difficult to quantify or measure. More than that it has been shown that human emotion has a direct influence on living DNA. These effects eliminate the interposition of distance between these objects. According to the physicist Amit Goswami, “when we understand us, our consciousness, we also understand the universe and separation disappears.”

The quantum physics experiments described above suggest that human DNA has an effect on the particles that constitute the matter of the universe. It is also established that human emotion has an effect on DNA, which in turn affects the particles that make up the entire universe. Additionally, the connection between emotion and DNA has effects which transcend space and time. Scientists now believe that there is, in space, a matrix of energy that connects any one thing with everything in the universe. This connected field accounts for the unexpected results of experiments in quantum physics that are sometimes described as “weird.” It is further believed that the DNA of the human body gives us access to the energy that connects with the universe. Emotion is the key for the tapping into this field. According to the famous quantum physicist Max Planck, “As a man who has devoted his whole life to the most clear-headed science, to the study of matter, I can tell you as a result of my research about the atoms this much: There is no matter as such! All matter originates and exists only by virtue of a force which brings the particles of an atom to vibration and holds this most minute solar system of the atom together... We must assume behind this force the existence of a conscious and intelligent Mind. This Mind is the matrix of all matter” [2].

### IV. HUMAN SUBJECTIVITY, CLIMATE CHANGE, AND THE FUTURE OF LABOR IN NEW ECONOMIC THEORY

It may also be that societies generally take for granted the importance of emotion and sentiment in the construction of future generations. Here, intellectually, the idea of affection or positive emotional sentiment may need to be more explicitly recognized as an important cultural and policy preference. In short, emotion and sentiment permeate all human behavior. Emotion and sentiment may be the driving force about what is right concerning the human prospect and what is required to avoid was wrong with it. Modern scholarship has drawn attention to the importance of the emotions encapsulated in positive and negative emotion. We provide a provisional overview of positive and negative sentiment. Ultimately, what we suggest is that genocide is impossible when culture, law, and politics give due deference to the principles of positive sentiment or affect. In turn, when negative symbols of emotionalized hate are dominant, the prospects of genocide and atrocity are heightened. Perhaps the most important insight here is that positive sentiment is a critical foundation for the culture of human rights. As such, negative sentiment is critical for the denial of the culture of human rights.

### V. CONSCIOUSNESS, VALUES, TECHNOLOGY, SCIENCE, AND POLITICAL ECONOMY

The discussion of consciousness and values in scientific and economic culture has always been an uneasy business. Scientists are expected to remain as value-free as possible. If the discourse of science is permeated with values, it is therefore also permeated with human subjectivity and not scientific objectivity. On the other hand, we know that in human society the important stakes about community organization, endurance, and promise seem to be tied up with values in some form or another. The traditional limit on the use of values from a scientific point of view remains a problem for the subjectivity of value-toned discourse. Let me start with a distinction. Values, in the context of intellectual culture, are used in two distinct ways. First, values are used descriptively. In this sense, the scientific observer is merely observing the value-conditioned behavior of social or legal participators.

What does the observer see? He sees individual human beings acting in a community, energized to pursue the things that they desire or value. In this sense, viewed from an anthropological point of view, what we call things that are desired or valued might, in a basic sense, be the human needs that the individual seeks to secure in the social context of his or her life. This is simply a descriptive inquiry into what the individual wants, how the individual goes about getting what he wants, and what he does with the desired thing that he has gotten. This will give us a description of the system of community or public order as it is.

There is another sense in which the term “values” is used. In this sense, the term is vested with normative importance. In other words, the question is not how values are produced and distributed but how they ought to be produced and distributed. This, therefore, is not a descriptive exercise; it is an exercise of

normative judgment. In the case of values used as a description of community order as it is, we are dealing with propositions that can be proved or disproved by observation, creating a hypothesis about what is observed. Further observation may prove or disprove the hypothesis. This is an empirical inquiry. When values are used in a normative sense, we are really evaluating the goodness or badness of their production and distribution. The determination of the normative priority or the preference given to a value statement reflecting the “ought” will have to be established by some other criterion of validation. That criterion, at least in the context of moral philosophy, is based on the idea that a normative preference (or “ought”) can be validated by reasons external to the statement-maker. In short, there are objective, justifiable reasons that may be formulated to determine the currency, or lack of it, of a moral or value proposition. We shall be using the term *value* in both a descriptive and a normative sense, but we will attempt to secure a sufficient clarity of exposition; therefore, we may discuss them as interrelated matters, keeping them sufficiently distinct so as to establish different insights into the problems we are talking about.

*A. Technological Change, Human Needs, and Values*

Anthropological literature has given us a key to understanding life in a very elementary community. Life revolves around human beings energized to satisfy human needs. Anthropologists also identify the structures that emerge from society which are specialized in whatever degree of efficacy to facilitate securing those needs. When we map needs onto institutions, we emerge with a social process that is based on the interaction of energies directed at securing needs through institutions. These institutions direct human energies, in some degree, to the satisfaction of those needs. We can now begin to identify basic human needs as the goods, services, honors, and gratifications that people in society desire or need. Moreover, we can classify these desires/needs in terms of the basic values that the individual social participant acts to secure for himself and those dependent on him. Thus, we may emerge with a model of social process in which human beings pursue values through institutions based on resources. Now, this is a purely descriptive inquiry, but it is possible to observe that the needs/values and the institutions specialized to secure them are, generally speaking, identifiable. What are these values and what are the institutions specialized to secure them in any social process?

*B. The Human Perspective, Technology, and Consciousness in the Human Social Process*

Values	Institutions	Situations	Outcomes
Power	Governance-Political Parties	Arena	Decision
Enlightenment	Universities- WAAS	Forum	Knowledge

Wealth	Corporations	Market	Transactions
Well-Being	Hospitals, Clinics	Habitat	Vitality
Skill	Labor Unions, Professional Organization	Shop	Performance
Affection	Micro-social Units (Family) Macro-social Units (Loyalty)	Circle	Cordiality, Positive Sentiment, Patriotism
Respect	Social Class	Stage	Prestige
Rectitude	Churches, Temples	Court	Rightness
Aesthetics	Museums, Monuments, Culture	Creative Orientation	Symbols of Cultural Beauty and Aspiration

In reviewing this map of values and institutions of the human social process, it is essential to keep in mind that it is the human perspective of consciousness that gives meaning and life to the values and institutions in society. The human perspective is endowed with identity, ego-demands, and the value ideals of expectation. These perspectives are driven by deep drives for self-actualization, self-realization, and psycho-social fulfillment. In this sense, the private motives of personality, even when displaced on public objects and rationalized in the public interests, still represent an underlying force that moves the personality in all social relations. This underlying force may be the force of self-affirmation for self-determination and is the most foundational energizer of the demand for human rights and dignity. The relationship between personality and value achievement may itself generate a sense of inner-fulfillment, which, in turn, becomes the driver of still higher levels of value creation and achievement. These values have their roots in the United Nations Charter and the International Bill of Rights. These are critical to decision-making in technology, science, and economic theory. The central feature of a relevant economic theory is a human being’s person and human capital. An economic theory that ignores human capital misrepresents the critical features of the economic ordering of human society. Central to the value discourse are the values inherent in the ecosystem and in the economic dynamics of labor. The preservation of the ecosystem is an imperative for technological science. The absorption of the Fourth Industrial Revolution is critical for social stability and a reduction of

rampant inequality. Science, human capital, and economic theory are indispensable to each other.

## VI. VALUE FRAMEWORKS TO GUIDE SCIENTIFIC CONSCIOUSNESS AND SOCIAL RESPONSIBILITY

1. *The value of life*: This is a centrally valued human subjectivity. It is referred to not in the “pro-life” sense (that a pregnant woman must bear a child), but in the Bill of Rights sense (that a person has right to personhood and autonomy). The value of life, therefore, includes the respect and deference given to the individual in the global community.

2. *The status and value of power and security*: Should it be narrowly or widely shared? Is the common interest of all honored in a system that seeks to secure the widest possible participation in all key areas the power process? One of the central values identified in the Atlantic Charter was the freedom from fear. This concern for freedom has evolved so that today no one denies that there is a critical interdependence between the concept of peace as a human right and all the other values in the UDHR. Peace and security might well be included under the functional category of power. However, peace is recognized as a complex peremptory component of the human rights value system.

3. *The status and value of economic and wealth processes*: Is the common interest of all better secured by optimizing the capacity to produce and distribute wealth or the opposite?

4. *The status and value of respect and equalitarian values*: Should invidious discrimination be fully prohibited (covering all areas of race, gender, alienage, etc.)? Can equality be meaningful if it is only a formal, juridical idea without regard to the legacy of exploitation, repression, and discrimination?

5. *The status and value of educational and enlightened values*: Should these values be widely produced and distributed or narrowly experienced? In the context of science, the critical value that secures scientific innovation and the liberation of scientific consciousness is the freedom of inquiry. The challenge posed by dramatic technological innovation is that further scientific consciousness will generate an internal process focused on scientific responsibility and a deeper sense of the value implications and consequences of technological innovation.

6. *The status and value of skill and labor values*: The centrality of labor and skills values to the human condition indicates that these are central and fundamental values implicated in the rights and expectations of those who seek to create and sustain these rights and labor values. Should these rights and expectations be widely shaped or narrowly shared?

7. *The status and value of health and well-being values*: The delivery of reasonably formulated and accessible healthcare and social services to all is now widely regarded as crucial entitlements, if the most basic standards of decency in politics and society are valued. Today, unemployment aid, social security, Medicare, and other social services are considered crucial to a society that cares for its people.

8. *The status and value of the family and other affective values*: Because the family is the basis of collective existence and is central to the human rights of children, the public policies of a society that destroys family (and other affective ties) pose a problem for the wide generation of affective values including the loyalty values of patriotic deference.

9. *The status and value of moral experience and rectitude*: A system that endorses the centrality of moral experience to the legal and political culture and seeks to maximize the spiritual freedom of all is yet another of the central themes of the human rights. How do we translate expectations of care or fundamental moral experience into the practical prescription of law and policy?

10. *The status and value of cultural and aesthetic experience*: The term cultural includes the concept of the aesthetic. In fact, the word “cultural” could encompass all the value preferences that we might extract from the UDHR. There is, however, a narrower meaning that the term culture might carry. That meaning ties in with the notion of human rights as also emblematic of the diversity of human experience, experience that reflects the cultural richness of humanity as a global community. There is great controversy about the issue of culture and tradition, culture and creativity of the present, culture and the elaboration of the aesthetic, which may capture and nurture the cultural narrative of creativity and beauty which may in fact be the critical psychological view of how the glue of social solidarity promotes creativity. The boundaries of this discourse are controversial.

11. *The status and value of the eco-system*: Today, we recognize a complex right to a viable eco-system on what theorists have seen as Spaceship Earth. The values embedded in the protection and promotion of a healthy eco-system, are, like many other values, issues of complex inter-dependence and inter-determination. However, implicit at least, in the concern for the integrity of the eco-system is clearly the notion that there are no human rights if there is no environment in which human beings can survive and possibly even improve the human prospect.

## REFERENCES

- [1] In bringing human subjectivity to the center of an appropriate focus of inquiry for scientific consciousness, raises the critical question of the absence of objective measurable indicators of shared human subjectivity and shared professional consciousness. This is an issue that has generated an important interest in the measurement of subjectivity. A founding presence in this initiative was William Stephenson. Stephenson was an Englishman. He obtained a PhD in both physics and psychology. He is credited with developing a credible scientific method for the measurement of shared human subjectivity. His method was called the Q Methodology. The Q methodology is described as “a methodology for dealing with intra-individual data. Its relations to other methods of multivariate data analysis are described and, in particular, the implications of factor analysis for it... the practical applications to different fields, e.g. type psychology, social psychology, projective tests, etc.” See Stephenson, *The study of behavior; Q-technique and its methodology* (1953). See also Brown, “Q Methodology and Qualitative Research” (1996). Brown, “A Primer on Q Methodology” (1993), [www.operatsubjectivity.org](http://www.operatsubjectivity.org)
- [2] G. Braden, *The Spontaneous Healing of Belief: Shattering the Paradigm of False Limits*, California: Hay House Inc., 2009, pp. 334-335.