

The Architecture of the Universe: A Look into Extraterrestrial Civilizations

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Abstract

The article advances a synthesized view of the world based on an intelligently communicated undivided Universe. It presents a fundamental component-based architecture and characterizes the controlling role of info-communication processes in the interplanetary system. The Fermi Paradox is then considered, which leads to a discussion about the concept of God as it pertains to Albert Einstein's and Stephen Hawking's theories. The article next introduces the author's own understanding of God. The approach adopted in this study situates Earth's civilization within the broader context of extraterrestrial civilizations, and it considers what this means for modern humans. Further research is also suggested in this area regarding the current needs of human civilization on Earth. The study uses an IT approach that is based on system-integrated info-communication processing. The approach is horizontal rather than vertical, which is popular for natural sciences such as physics and chemistry.

Keywords: Aliens, Civilization, Extraterrestrial Civilization, Fermi Paradox, God, Info-Communication, Intelligent Communication, Intelligent Design, Intelligent Machines, Post-Human Civilization, Undivided Universe, Universe Cycle.

Introduction

The purpose of this study is to present the architecture of an intelligently communicated undivided Universe and, on this basis, to characterize the approach to this worldview. It is a worldview that unites previous worldviews. Although worldviews thus far seemingly contradict one another, when analyzing and interpreting their nature, it appears that, apart from their extreme elements, they can be made consistent with one another. This is possible due to the progress of info-communication-driven science and technology.

Whether the Universe is (a) stable or unstable, (b) open or closed, (c) shrinking or expanding, or (d) flat or spherical has no practical meaning for humans, for the processes shaping the Universe are carried out over exceptionally long periods, measured in millions and billions of years.

Whether the Universe will last another 50 or 60 billion years is also not practically important for humans; however, this does not mean it is not necessary to do research on the nature of the Universe, as some findings can affect our transient lives.

Although the affairs of the Universe are not the subject of daily interest and concern for most people, an understanding of what governs the Universe can bring us contentment, for it can help us see that we are not alone in this hot “soup” of gases, liquids, solids, and other frightening ingredients. Moreover, there is a real possibility that we may be able to colonize Mars and the Moon, which is currently being explored as part of a business project by the two richest people in the world. It is, therefore, important to develop a view of the world that is undivided and connected, for it can provide a basis for meaningful modern education for enlightened and wise people.

This study is based on an information technology (IT) approach that characterizes information and system-integrated processes in terms of their *technologicality* in the Universe. It is more of a horizontal (taking into account many fields) than the vertical (specialized) approach, which characterizes individual sciences such as physics and chemistry. The study does not analyze the probability of life on other planets. The literature is extensive and constructive on this subject (Wallace, 2020). The analysis presented in this paper argues that Earth is a relatively young planet. After all, it was formed 9.5 billion years after the Big Bang and the creation of the Universe as we have known it, and other planets probably formed earlier; thus, there is most likely an exceptionally long history of civilization development. Furthermore, while it has taken Earth-based civilizations the last 500 years to develop modern science and send humans to the moon, aliens may have known modern science and technology for millions of years (and maybe longer). Therefore, their level of civilizational technology and role in the functioning of the Universe is likely dramatically more developed than that of the people of Earth.

The opinion of the eminent science fiction author Arthur C. Clark is amazement at the following thought: “There are two possibilities. Either we are alone in space or we are not. Both are terrifying.” Furthermore, the famous astrophysicist Avi Loeb, head of Harvard University’s Department of Astronomy, says that “extraordinary conservatism keeps us extraordinarily ignorant” (Loeb, 2021). In this study, therefore, let us look at the Universe from a position not of physics, but of a technologist of information-communication-oriented civilization development.

Civilization at the Crossroads in the 21st Century

Thanks to advances in education, people in the 21st century have come to realize that their civilization is failing because of a risky lifestyles and the depletion of strategic resources (Targowski, 2019), including global warming.

As a result, some now believe the solution to be the colonization of other planets, including Mars (which is being pursued by the world's richest person, Elon Musk) and the Moon (being pursued by Jeff Bezos, the second richest person in the world). These businessmen see colonization as an important goal full of business potential.

This immediately begs the question whether we humans, as highly intelligent organisms, are alone in the Universe. This is probably one of the most important scientific and philosophical questions that can and should be asked today. Now, in the 2020s, we are approaching an answer in the affirmative: biological life is possible in the Milky Way galaxy and beyond. The number of planets with living organisms is estimated to be huge, perhaps in the order of billions. In the next 25 years, we may find an answer to the question of what life is like in spaces closest to Earth. We can get this knowledge by carrying out excavations with the help of advanced science on planets nearest to us, searching for similar forms of life, as we know on Earth. That advanced science possesses such possibilities is evidenced, for example, by the confirmation of the existence of the Higgs boson particle (called the "God particle" by some), which is said to have existed before the Big Bang. Nonetheless, so far, science has not attempted to investigate the times before the Big Bang.

Over the years, the constitution of the Universe has been a problem that has occupied the best and the brightest minds among theologians and scientists. The first modern breakthrough was made by Nicholas Copernicus about 500 years ago. Several centuries later, in the 20th century, our understanding was expanded by the bold theories of Albert Einstein, Edwin Hubble, Roger Penrose, Stephen Hawking, and others. Numerous authors of science fiction, such as Isaac Asimov and Stanisław Lem, also contributed to our knowledge. Science continues to uncover the great mystery of the Universe and life; however, the more we know about it, the more pessimistic our view of humanity's fate can be. The greatness of the Universe and our own smallness are in such contrast that it seems that we are stuck in a hopeless situation, even if we only consider the prospect of life on earth. However, the study of the Universe can bring some unexpected surprises, and humanity may have a future if we decipher the mystery of how and by whom the Universe was created.

Conflicting Views on the Universe in the 21st Century

We can distinguish the following worldviews about the universe, which at first glance may appear mutually exclusive:

- **Theological view of the world:** God voluntarily created a free world in which humans have the autonomy to choose their own aims of life; however, if people should choose to live in love and goodness, the result will be eternal transcendental salvation. Different religions differ in the details.

- **A naturalistic view of the world:** Humans are a random byproduct of chaotic but evolutionary natural forces. From this perspective, the world is created by the natural forces themselves. We humans must “redeem ourselves” through science, technology, and wisdom. The starting point is Darwin’s theory of evolution, according to which there is natural selection and the most fit survive.
- **Intelligent design:** Nature has patterns, the best explanation of which is a deliberate design rather than a random chance. This perspective argues that Darwin’s theory has too many gaps and unexplained situations to be true (Dembski & McDowell, 2008). This view is met with criticism from scientists that it is a hidden continuation of religious views.
- **Extraterrestrial intelligent civilization (ETC):** The debate on extraterrestrial life has had a huge impact on science, popular culture, and secular and theological worldviews. Such discussions have led to a non-anthropocentric worldview, called “biophysical cosmology”. This cosmology is still unproven, but if extraterrestrial intelligences are discovered, the cultural impact of the debate so far will only be a minor prelude. The result of this approach has been the search for extraterrestrial intelligence (SETI), which includes watching for signals from extraterrestrial civilizations and investigating reports of UFOs (such as the 2017 UFO sighting that occurred in the US State of Nevada).

These worldviews appear to be mutually exclusive, and their supporters have been fighting ruthlessly and bloodily to uphold them for millennia; however, the views are, in fact, complementary.

Intelligent Communication in the Undivided Universe

According to this author, these worldviews are not mutually exclusive, for there is sufficient empirical evidence in nature to prove the existence of both a higher intelligence and chaos. What is this higher intelligence (HIN)? On Earth, higher intelligence in humans is based on modern science and technology, which is only 500 years old. Furthermore, advanced higher intelligence is based on the use of supercomputers, which is only about 50 years old. How many years has higher intelligence existed on other planets given the trillions that are older than Earth? This suggests that higher intelligence could be very ancient, dating back millions, perhaps billions of years or more. Such extraterrestrial civilizations could have overcome the barrier of traveling at the speed of light; however, we do not currently possess knowledge of such civilizations, nor will we, perhaps, for a long time.

Let us return to HIN: Who is God? According to the Judeo-Christian religion, God is the creator of the world and is a being with higher intelligence. God is a biologist, geologist, physicist, chemist, philosopher (moralist), and probably a computer scientist.

Of course, this is not to be thought of as a single person nor a staff of organized specialists who “pulls the strings” both in terms of chaos and the deliberate organization of matter. For example, the Christian Church, for tactical reasons, discusses the nature of God only in terms of morality, so as not to make mistakes in defining the creator and to expose the conception to criticism. However, what is, for example, the Holy Spirit? If it communicates the intentions of God to followers, then it must be a “telephone” of sorts that uses God’s “telephone network” in a system unknown to us.

Albert Einstein, one of the greatest physicists of the world, believed that “God does not play dice with the universe.” In the same letter, he wrote that “God tirelessly plays dice according to the laws he himself has established.” Einstein believed in laws of nature, and if they are laws (he discovered some of them), then there must be a legislator. Einstein was curious about the laws in God’s “basket” that he, Einstein, did not know about. For him, God was not human-like, but pantheistic (an all-encompassing and omnipresent being), as Baruch Spinoza saw back in the 17th century. Einstein perceived the presence of will and purpose outside the sphere of human existence. However, Einstein’s God is like a “cloud” of knowledge and wisdom. It is something not explained, as if magical and mysterious. For the author of this text (a technologist of civilization), God is a higher material intelligence housed in a living organism. Is this organism human-like? Not necessarily, but it is a self-contained, well-organized, and functioning organism. Works of science fiction characterize such organisms and give them an enormous scope of power. However, we cannot yet see what HIN looks like, for the journey of humans to other planets using techniques known to us would take a very long time, counted in the order of light years.

There are many real and puzzling events called “miracles” that have taken place (alongside many overinterpreted cases).¹ If science cannot explain such cases, they are attributed to God. In other words, God exists in the experiential mentality of humankind. In fact, God is most likely an intelligent organism outside of our planet. God can be thought of as the “highest and smartest head of the design office,” if taking an intelligent design approach. However, for tactical reasons, this approach does not use the term “God”. An exceedingly difficult question is, who created God? It may have arisen from chaos, which, over billions of years, developed and came to possess a very deliberate higher intelligence that influences us and teaches us how, for example, to live morally. Therefore, if there were no religion, it would have to be created.

¹ The author of this text has experience in this regard, for how can one explain the fact that he came out alive from under the corpses of those executed in the Warsaw Uprising of 1944? This happened when he first entered into a long hallway where his mother stood, having been shot with a series of bullets. She lost consciousness. The Russians were shooting in German uniforms, and then one of the gunmen shouted, “here are the Russians.” They stopped shooting and told the Russians to leave. Those who were still alive then came out. The Virgin Mother appeared to my mother and told her to pull me out from under the corpse of the nanny who had covered me with her body. For us, it was a miracle that we made it out alive.

At any rate, that is what happened. Nonetheless, because religion is organized and practiced by humans, it possesses shortcomings typical of humans, the analysis of which is not the subject of this study.

The following worldview is used in this study (Figure 1)

- **Intelligent communication controls the undivided world.** The undividedness of the Universe was first defined by David Bohm (1980).

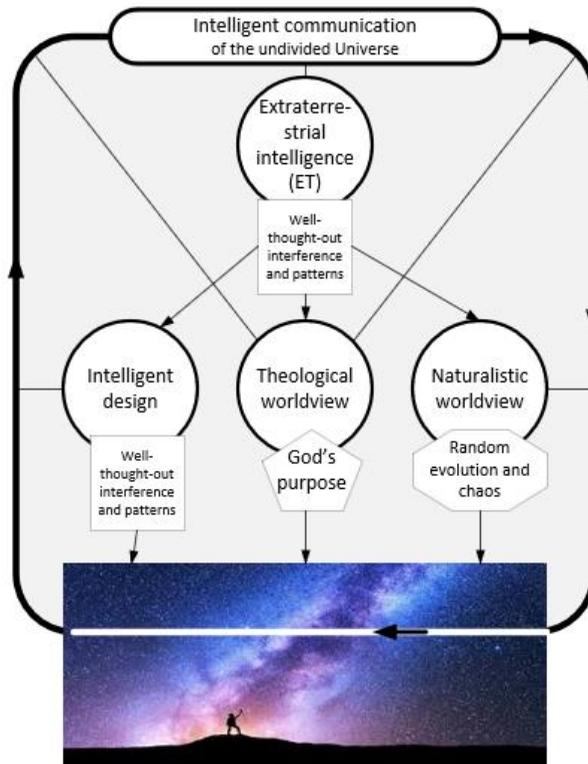


Figure 1. Model of intelligent communication in the undivided Universe

This study was undertaken in consideration of the role of intelligent communication in the Universe (ICU), but with the condition that the existence of an intelligent extraterrestrial entity must be scientifically verifiable at some point in time.

Fermi's Paradox – “Where Are They?”

There is a problem known as the Fermi paradox, which is said to have been formulated in 1950 when a group of physicists (including Enrico Fermi, best known for creating the first nuclear reactor) discussed the question of why we have not yet been visited by alien lifeforms.

Given that (a) the Sun and Earth are part of a young planetary system (4.5 billion years old) compared to the rest of the Universe (14 billion years) and (b) interstellar travel for extraterrestrial civilizations has been achieved, the hypothesis states that the Earth should have already been visited by aliens.

Modern responses to Fermi's paradox are the following:

1. Perhaps aliens have visited, but they are invisible to us. Just as our civilization has aircraft invisible to radar, so too extraterrestrial civilizations, which may be billions of years older than ours and probably more intelligent, may have advanced systems capable of avoiding detection.
2. Perhaps HIN aliens have developed robotic artificial intelligences that have defeated them and are not interested in space travel. After all, Ray Kurzweil (2005) predicts that when computers "think" faster than humans (with such progress being seen as early as the 2020s), then there will be a point of *singularity* (similar to the Big Bang), that is, there will take place the transformation of the human species into a human-machine hybrid (perhaps a cyborg of sorts).
3. Perhaps HIN organisms, if they are still alive, have decided that humans do not pass some test or condition required for contact and have concluded that they have no interest in us.
4. Perhaps HIN organisms do not want conflicts with humans and, as a result, do not visit us or reveal themselves to us.
5. Perhaps interstellar wars are so intense that aliens do not have the resources and time to visit Earth.
6. Perhaps there are no aliens.
7. Perhaps there is another reason.

The topic of Aliens provokes the question, what is the evolution of HIN in space? A model of this evolution is illustrated in Figure 2. Initially, that is, about 14 billion years ago, there was chaos. Then, through evolution, there was created after a few billion years a Higher Intelligence (HIN), whose shape we do not know. From there, it took about 4 billion years for living organisms to appear on Earth. We should also take into account the fact that on older planets, organic life may have formed up to 10 billion years ago. Moreover, on Earth, the evolution of humans from apelike ancestors took about 6 million years, and it took the past 500 years for advanced science to be able to produce robots with artificial intelligence. Thus, if early HIN aliens were able to build similar machines in a similar timeframe, this could have occurred just under 10 billion years ago, giving them wide-ranging experiences we cannot even dream of.

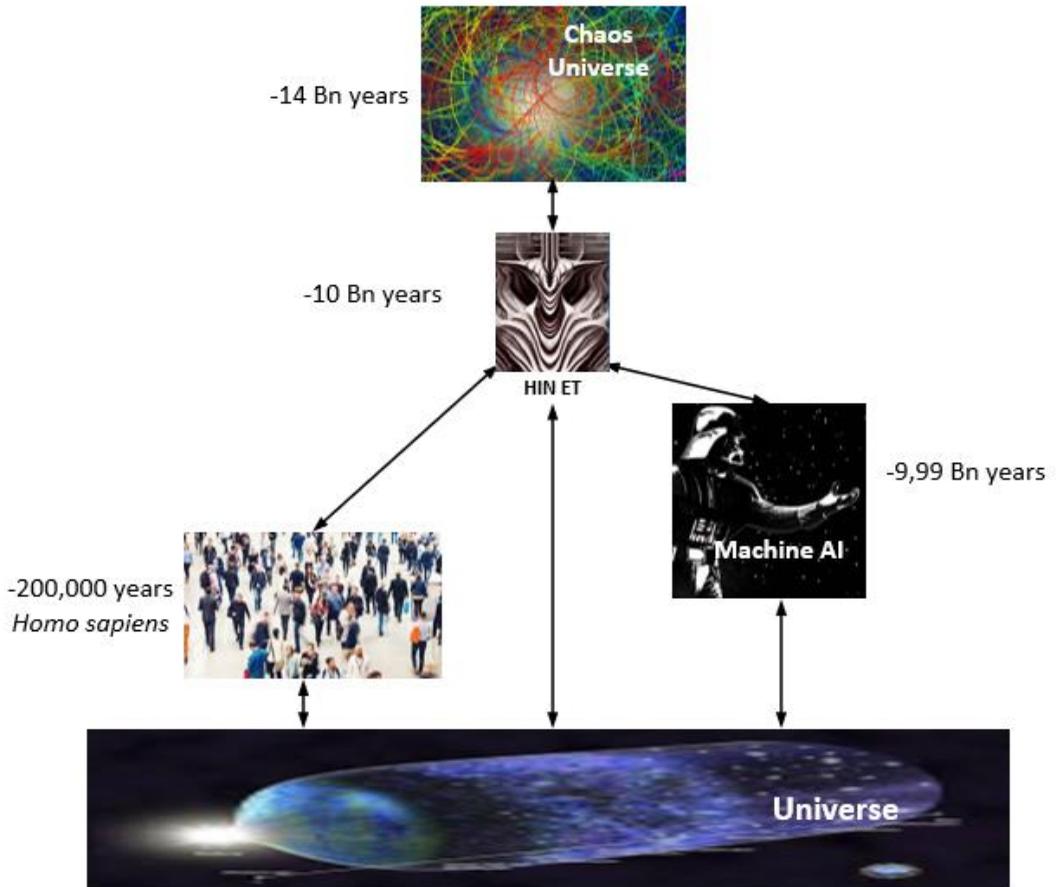


Figure 2. Model of the evolution of intelligent life in the Universe

Carl Sagan (1994), one of the most prominent American astronomers, stated that there could be many manifestations of extraterrestrial intelligence that modern astronomy does not understand and which, therefore, remain a mystery. This could include, for example, natural quasars or very intense gravitational waves that come from the center of our galaxy. He estimated that there could be at least one million other stars and planets in which advanced civilizations exist. He also argued that there is a good chance that many civilizations are sending signals our way. However, due to the huge distances between stars, we cannot establish cosmic contact by radio transmission (one conversational adjacency pair could take around 600 years). Our civilization does not have enough time and resources for such communication; however, perhaps communication between advanced civilizations takes place with other forms of science and technology, which are not yet available to us.

So far, we have found nothing that can be, without doubt, considered extraterrestrial (ET) communication; however, there have been some suggestive “events,” such as signals that meet all ET intelligence criteria except one: the signal never repeats itself.

Nonetheless, our search for these signals has only just begun. If they are ever captured, our view of the Universe and ourselves will change forever.

Hypothesis of Intelligent Communication in the Universe (ICU)

This study is conducted on the assumption that intelligent organisms are active in the Universe. Based on this assumption, the following hypothesis is advanced:

Hypothesis 1: Human life is part of a hierarchical information-, energy-, biology-based system, whose first intelligent-triggering communication came from outside the Milky Way Galaxy.

If this hypothesis is true, then the efforts of physicists to define the *Grand Unified Theory* (GUT) (Hawking, 2010) or the *Theory of Everything* (TOE) (De Aquino, 2012) cannot succeed unless they include the integral role of information communication processes in the Universe. The role of information communication is presented in Figure 3. Life and matter are presented here as a single info-energy-biological-material process (i.e., one that is physical, chemical, and biological). Furthermore, the relationship between DNA and the rest of the Universe is maintained by a human info-communication process.² This is a digital process, now increasingly explored and improved upon. The dynamics of DNA (as well as RNA) processes reflect (a) the flow of analog information to and from the brain, (b) the flow of digital information to and from the mind, and (c) the role of hidden memory fields.

The key to understanding the mechanism of info-communication synchronization between life and matter in the Universe is the ability to define the nature of quantum potential and its relationship with the processes of intelligent communication as well as its relationship with other information and energy systems in our civilization. Currently, we do not possess the right tools to investigate and define this mechanism. Thus, today, this mechanism may appear to some as supernatural and for others as something from an extraterrestrial civilization.

The main components of this model are the following:

- **Quantum potential** is a central concept in quantum mechanics, formulated by de Broglie and developed by David Bohm in 1952. As part of their theory, quantum potential is a force in the Schrödinger equation that directs the movement of quantum particles.

²DNA is a molecule that contains codes for the development and functioning of the body.

Based on their interpretation of quantum theory, David Bohm, and Basil Hiley showed how the concept of quantum potential leads to the concept of “the unbroken whole of the Universe,” suggesting that non-locality is a basic new quality introduced by quantum physics (Bohm & Hiley, 1993). Hence, the Universe is indivisible (Bohm, 1980).

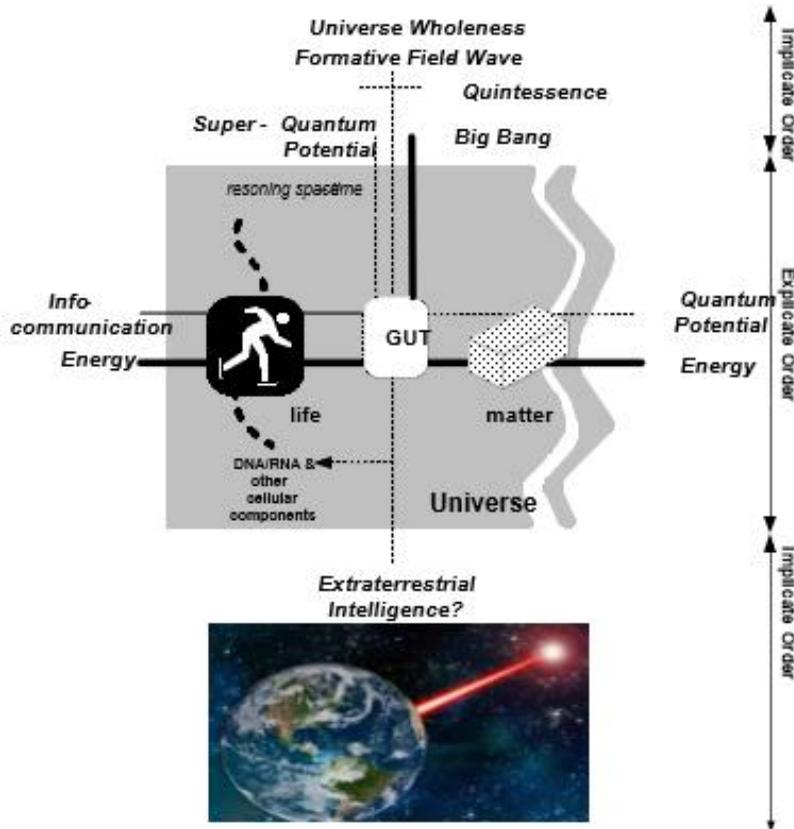


Figure 3. Model of the dynamics of the Universe (Targowski, 2009, p. 422)

- **Super quantum potential** refers to waves that carry molecular quanta that act in the Universe outside our planet. Here, we only guess what the dynamics are of the Universe.
- **The implicate order** is the term introduced by D. Bohm. It is the world unknown to us, and we can only guess what it may be. What takes place, for example, in religions? Bohm believed that science and art would someday be a whole, and Pope John Paul II believed that there was no contradiction between faith and science.
- **The explicate order** is the world as we know it, thanks to our science.

However, this is a domain of limited knowledge reduced to mechanics, and it excludes “non-mechanical” relationships, e.g., those with extraterrestrial intelligences.

- **Quintessence force** is a dynamic force evolving over time. It is a spatially dependent form of energy with negative pressure sufficient to drive accelerated expansion.
- **Extraterrestrial intelligence** includes HIN organisms and machine AI.

The inability of physicists to advance a persuasive GUT/TOE is because they do not include information in their models, nor “intelligent design” and intelligent extraterrestrial communication. The role of quantum potential is also not considered in their assumptions and calculations. Our current level of knowledge in civilization prevents us from characterizing this aspect of the Universe empirically. However, we should be aware that information communication can come from outside our very young civilization and that this may be the key to understanding the logic of the Universe.

Architecture of Elements of the Universe

In order to understand the mechanisms of intelligent design, super quantum potential, and quintessence force, it is necessary to define the architecture of the Universe, which until now has been studied mainly by physicists as “civil engineers of the Universe.” The architecture of the Universe is shown in Figure 4. From this, the following hypotheses can be derived:

Hypothesis 2: Among the more than billion solar-like systems in the Universe, some should have the right conditions for life, for given such a huge set of planets, Earth statistically should not be the only life-friendly environment.

Statistically speaking, this hypothesis may be highly likely; however, it cannot be empirically proven by science at this time. Thus, statements about life on other planets are just guesses. Nonetheless, Polish astronomer Alexander Wolszczan discovered the first Earth-mass planets outside our solar system at the end of the 20th century, indicating that the Universe may have the conditions to sustain life outside of our planet (Wolszczan, 1994). Since then, new planets have been discovered from time to time.

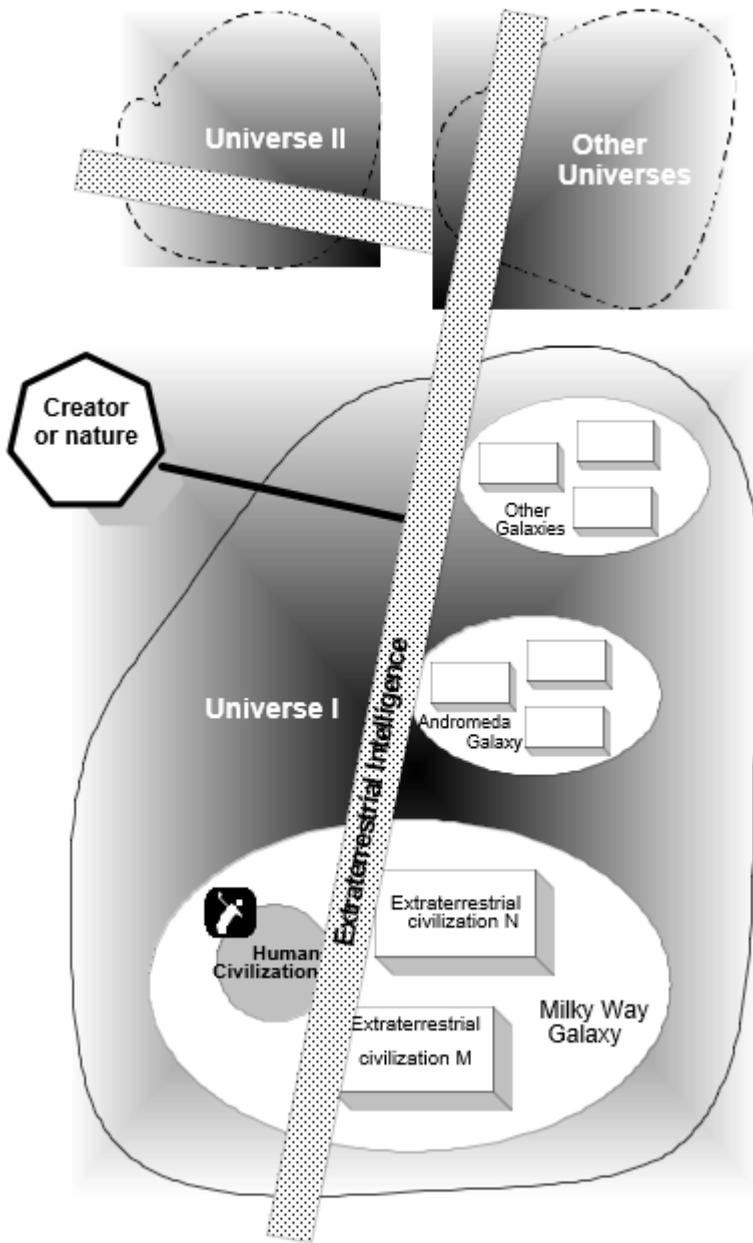


Figure 4. Architecture of the Universe

Hypothesis 3: Life in the Universe may have been present long before its existence on Earth (about 5.5 billion years before life began on Earth) and could therefore have developed more advanced scientific and technical knowledge as well as civilizational wisdom than ours.

Intelligent humans (i.e., *Homo sapiens*) have inhabited the Earth for about 200,000 years, but only in the last 500 years they have developed and applied advanced scientific and technical knowledge. If hypothesis 3 is true, then living creatures from other planets could also have developed knowledge and technologies much more advanced than ours.

Hypothesis 4: The development of civilization requires intelligent design and a quintessence force that comes from a civilization at a higher level of development than our own or from the creator.

This hypothesis is a generalization of hypothesis 3, which was applied to our solar system. If human civilization is not unique in the Universe, then according to the Copernican principle, no cosmological theory can be advanced in isolation. This suggests that civilization cannot be created by itself; rather, it requires “rules” from the outside.

Hypothesis 5: The triggering of the Big Bang requires the existence of a primary atom or info-energy process (the first signals) that came from a higher civilization. Such a signal is the Higgs-boson molecule, experimentally confirmed in 2012 at the Hadron Collider at CERN in Geneva.

This hypothesis holds that no Universe can be created from within: It also requires “regulations” from outside. Steven Hawking (after Peter Higgs in 1964) assumed that before the Big Bang ($T=0$), there must have been some original force or particle that caused the explosion.

Dynamics of the Seven Forces of Nature and Their Intelligent Control

Recent observations from the Hubble Space Telescope and Wilkinson’s Microwave Anisotropy Probe (WMAP) have shown that most of the Universe is made of dark energy that works by a dark force. Current mass/energy balance estimates place dark energy at about 70 percent of the Universe, while visible matter and dark matter make up less than 30 percent. Thus, most of the Universe consists of something we know nothing about. This observation allows the following hypothesis:

Hypothesis 6: At the time of the Big Bang, dark energy interacted with an integrated force composed of four sub-forces: a strong force (that has the power to bind the molecules of an atom), an electromagnetic force (that holds atoms together in waves), a weak force (that controls radioactive decay), and the force of gravity. This interaction may have been triggered by an external force coming from some external environment.

The proposed role of the external force in this process of creating and maintaining the functioning our (inner) Universe is illustrated in Figure 5.

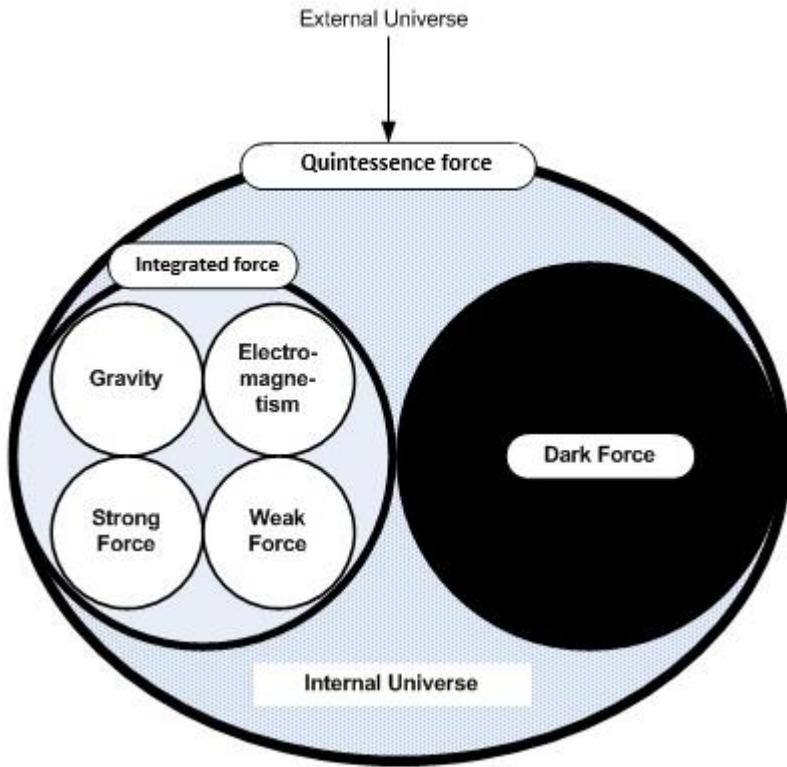


Figure 5. The role of the quintessence force in the Universe

It can be hypothesized that the controlling function of the quintessence force is triggered by the external force and is involved in all the intersections of the seven basic forces that rule the Universe, shown in Figure 6. This control function is based on a certain kind of quantum potential signal as well as other kinds of signals which we do not know at this time and which are being searched for by several research centers, including SETI.

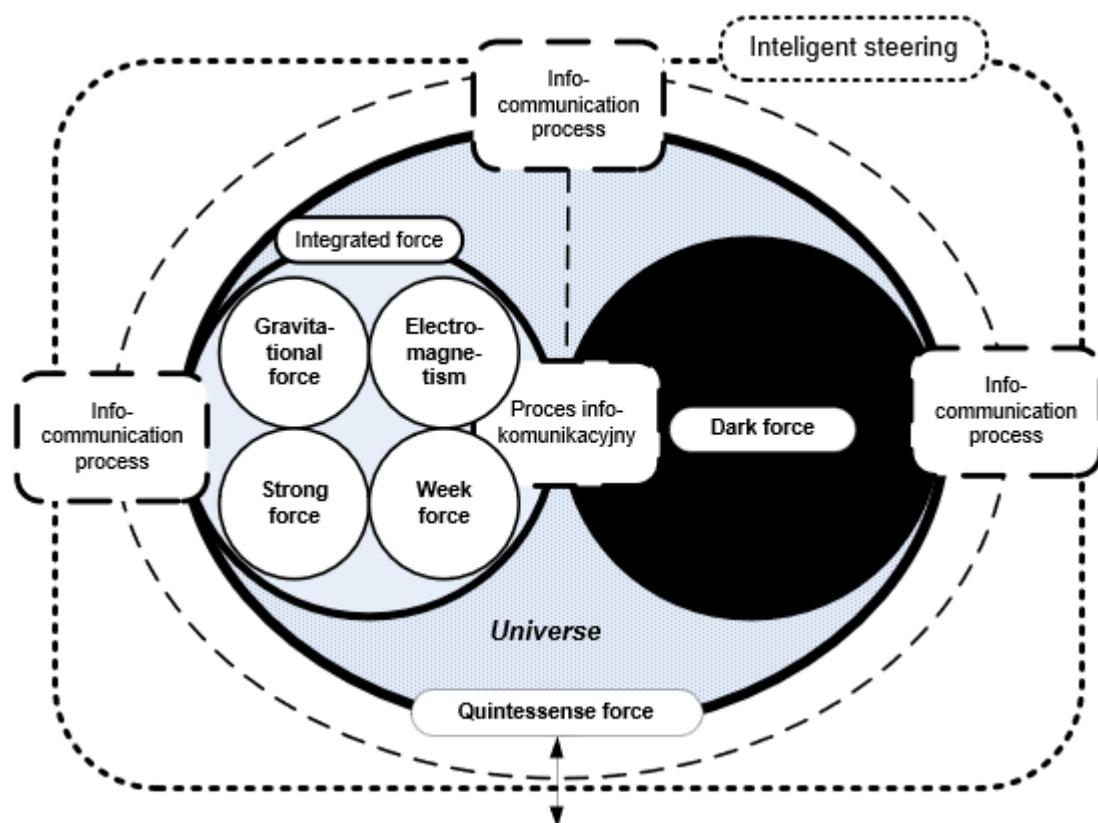


Figure 6. The role of the intelligent steering info-communication processes, which control the operation of the seven forces of the Universe

The dynamics of the seven forces of the Universe are illustrated in Figure 7. This provides a basis for modifying the GUT (Grand Unifying Theory). On the other hand, the TOE (theory of Everything) should be based on the GUT as well as the role of intelligent steering and natural info-communication processes (self-active processes integrated into planetary dynamics). Even Albert Einstein believed that the TOE should consider God's role in the creation of the Universe. On the other hand, Stephen Hawking — who claimed to know how God thinks (Hawking, 1988) — thought that most theorems are incomplete, so we cannot develop such a theory. This brilliant physicist was not only a prisoner of his greatly inoperable body, but also of his view that a theory of the Universe must be constructed through only physical forces of nature. It would be as if we perceived the functioning of the modern city merely through the forces of lighting, heating, nutritional energy, and sewage.

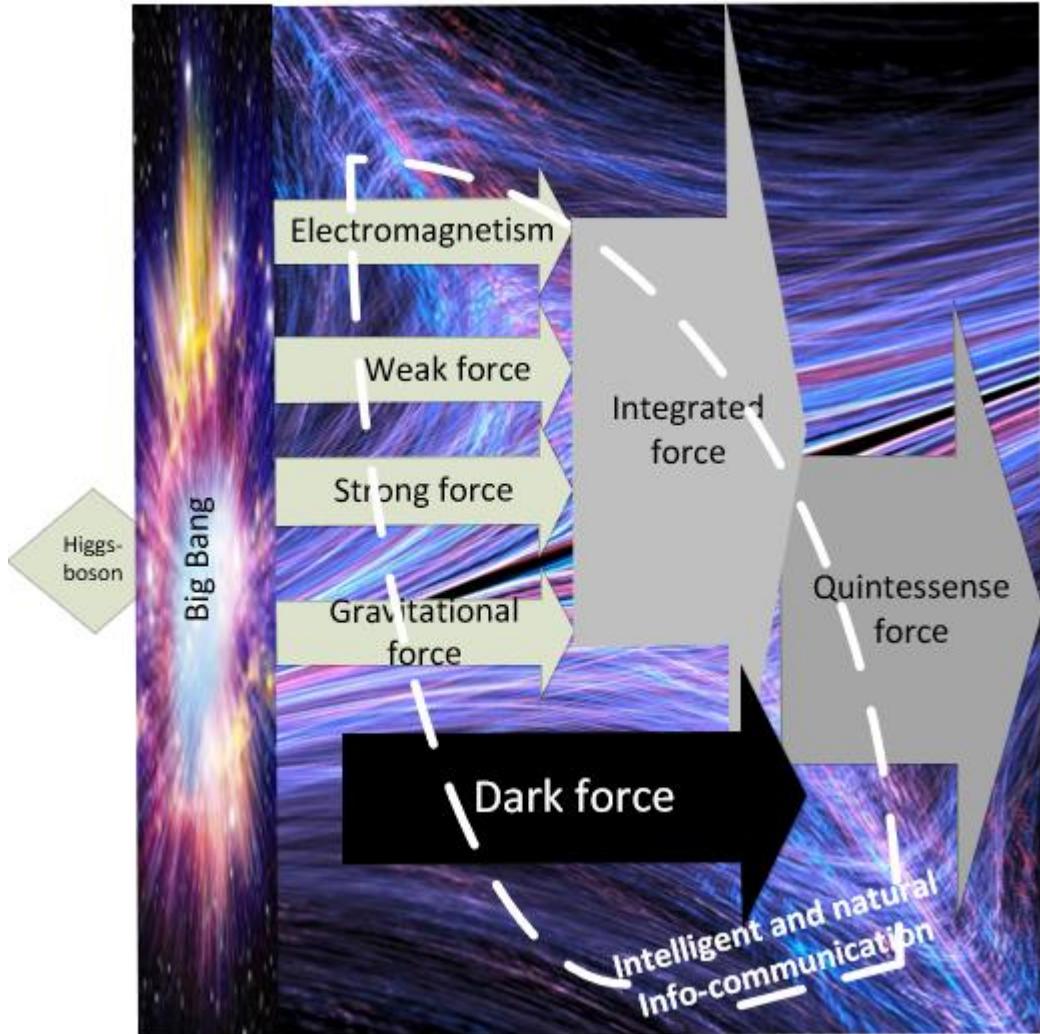


Figure 7. The dynamics of the 7 forces of the Universe, which form the basis of the GUT

On his deathbed, Einstein asked for notes about the TOE. Unfortunately, he refused the presidency of Israel in 1952 because he believed that he did not have enough experience and that he was not qualified for dealing with human relations. In short, he had no organizational experience. Such being the case, how could he think how God thinks? It is a pity he refused the presidency, for if he had had such an experience, perhaps he would have come to know the answer to this question.

Let us try to think about how “God” thinks and who he is:

1. “God” (as we, humans, imagine “God” to be, that is) is the cleverest being in the Universe, almighty, omnipresent, good, just, and merciful.
2. If “God” is the almighty and the wisest, “God” thinks like an executive head of “popes” (in Christianity) who are responsible for individual planets.

Some of these “popes” we make “saints.” Thus, “God” is the head of the “saints” but is not the same as the saints. He worries about them, their fate, and their living conditions, including the climate, natural resources, and places to live in the Universe. “God” has HIN organisms and information processes that control constituencies and nature.

3. If “God’s” surveillance over us is not an illusion *a la* David Copperfield, then it must occur via some physical organism or mechanism. It is possible, however, that “God” was eliminated via intelligent machines, built by “God’s” subordinates. Such a super HIN could have evolved over, say, a billion (\pm) years (let us remind ourselves that modern science and technology is only about 500 years old) through the development of science and technology on one of the planets of the Universe. This would be such a highly advanced intelligence that it would seem supernatural to us, Earthlings. Any presumption of its nature would seem tactless on Earth and would seem unworthy of a believer. For example, the average person’s brain has 100 billion neurons. In contrast, the octopus has 500 million, of which 300 million are distributed in its 8 legs and 200 million in its head. In some sense, then, the octopus is “multi-brained.” In the water, it is more efficient than humans because it thinks not only with its head, but with every limb. Human limbs do not think, for there is only central “head” of thought. That is why octopi win against sharks, whose fins are incapable of thought. In contrast, “God” could have 1+ trillion neurons distributed throughout the body, as a result of evolution on some other planet. Thus, “God” could have numerous centers of thought, similar to how a supercomputer can have thousands of processors that process information in parallel. Therefore, “God” is almighty and extraordinary. This is a material fact of “God’s” existence. For humans, the consequences of this are culturally positive, for it allows a focus on positive morality. People need “God”. “God” gives people hope for a better life, and who would not want that?
4. If we can call a civilian person a “saint,” why cannot a super HIN organism be called “God” and the designs of such an organism intelligent? This is evidenced by hundreds of unsolved mysteries in the evolution of life and nature, including the results of major Earth disasters (e.g., why did some animal species die and others survive?).
5. “God” (the name varies from religion to religion) for most Earthlings is the supreme moral authority and is a ubiquitous creator (whose image we do not know). God must have made advanced civilizations capable of intelligently communicating with the Universe (unless eliminated by intelligent machines).
6. If the results of “God’s” action are material, “God” should be material. The whole meaning of the Trinity’s dogma is an answer to this question. In Christianity, “God’s” hypostasis is fulfilled in the form of “God” becoming incarnate. Furthermore, faith in the belief that life does not end in physical death has been accomplished by the mission of Christ, and the dilemma of contact with “God” has been solved by prayer and grace through the Holy Spirit.

Several decades ago, an experiment was conducted by interconnected radio stations. They announced to their listeners that on a given day and at a given time, they would ask the listeners to pray for the recovery of a named person. Special instruments for measuring electro-magnetic waves in different locations of the globe recorded large increases in these waves at those points. It is interesting that the concept of Nirvana in Hinduism is so close to Christian Eternal Life.

According to John Lennox, a mathematician at Oxford University, paying homage to mathematical materialism over the last century has caused enormous intellectual and social havoc (Lennox, 2006). Lawrence Krauss (2012), a physicist at Arizona State University, also writes about this issue. The main theme of his book *a Universe from Nothing* concerns the discovery that all the signs suggest the Universe could and probably did arise from a deeper nothing (involving the absence of space itself) and that one day, it could return to nothing through processes that not only cannot be understood, but also processes that do not require any external control. In a similar vein, Hoimar von Ditfurth (1982), in his book *the Origin of Life: Evolution as Creation*, wrote that science and theology are compatible and argued that evolution is a process brought to life by divine action. He also held that creation is not a single event, but rather a long-term process of evolution. The book opposed religious creationism and was described as similar to theistic evolutionism. This view is related to the theological concept that the act of creation is not an individual event, but is spread over the entire duration of the Universe.

Richard Dawkins, an atheist, is well known for his critique of creationism and intelligent design. In *the Blind Watchmaker* (Dawkins, 1986), he argues against the watchmaking analogy, an argument for the existence of a supernatural creator based on the complexity of living organisms. Instead, he describes evolutionary processes as analogous to a blind watchmaker since reproduction, mutation, and selection are not directed by any designer. In *the God Delusion* (Dawkins, 2006), Dawkins argues that a supernatural creator almost certainly does not exist and that religious faith is an illusion. However, Dawkins' atheist stance is undermined by Lawrence Krauss and many other scientists.

7. The problem is, should we teach religion at school? More specifically, should we teach just one religion? The answer is "probably not"; rather, comparative religious studies must be taught with social values oriented towards those who have faith, agnostics, atheists, and those who believe in intelligent communication. "God" has given us humans the freedom of choice, so let us choose the values that are important to us.

These considerations suggest that further research on the Universe should include the role of info-communication processes and ET intelligence, for such research could bring solutions in technology and medicine that can be used in our civilization.

Universe Cycle

From the presented models of the forces of the Universe emerges a system of info-communication processes (ICPs) that occur in planetary systems, organisms, and intelligent machines. These processes are entangled and form a system that controls the cycles of development and actions of the Universe. First, there was chaos, and then there were planetary systems that gave birth to organisms, which in turn produced intelligent machines. Together they control the Universe, which will dissolve into chaos over time. This, in turn, may begin a new cycle of development in the Universe (Figure 8). The current cycle of the Universe is perhaps not the first cycle, and the next cycle may cause chaos, as the fall of the previous cycles did.

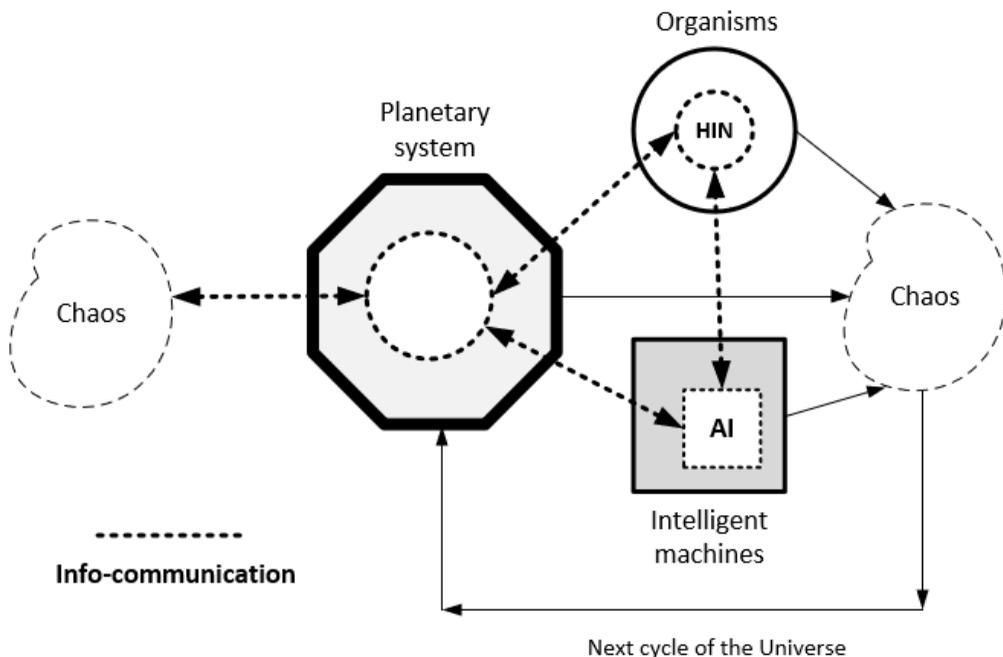


Figure 8. Universe Cycle

The presented model of the info-communication process of the Universe looks complicated; however, a microcosm of this process is used by people in the 21st century, namely, the Internet of Everything (IoE), which interconnects almost everything into a single system, thanks to the implantation of logical-computational chips (Figure 9). Why would we not assume, then, that ET civilizations, who have lived for millions or even billions of years, have not solved the problem of interplanetary communication in a similar way, for example, in the form of chaos control?

Perhaps in the 21st century and the third millennium, we will discover more and complete this task of defining the ultimate GUT. On the other hand, perhaps it is too early, and perhaps we will need another, say, 10 million years and more to do so. Alternatively, maybe there is no such theory, or perhaps there is a “creator” who does not want us to know too much about the GUT.

A. Further research directions:

- Explore how to integrate different worldviews into a unified, wisdom-based system that can serve as the basis for educating people.
- Examine how to implement a religious studies program that includes perspectives from different faiths, agnostics, atheists, and those who believe in intelligent communication.
- Explore the nature of human intelligence, civilization, planets, and the Universe.
- Explore the wisdom of humanity, civilization, planets, and the Universe.
- Explore how info-communication systems affect Earth’s physical processes and systems as well as how they affect our civilization.
- Explore how the colonization of planets could benefit humans in the short and long terms.
- Explore what technologies need to be developed for humans to travel to and inhabit other planets.
- Will perfect artificial machine intelligence be developed by humans?
- Investigate the probability that humans will not fall victim to intelligent machines.

B. Research opportunities:

- So far, research has been based on the analysis of four forces. It has not considered other forces, such as the integrated force, quintessence force, and dark force.
- So far, there is a strange fascination with the development of artificial intelligence, but is this fixation wise?
- So far, conflicting worldviews have been practiced: Can we not afford people who are well-educated with common, balanced, and wise ways of thinking, deciding, and persevering?

C. Additional ideas:

- If the Earth and the Universe are products of randomness, then what random strategies should people develop to calculate probabilities? Can we count on a long-term future? If not, what should be our short-term strategy? If there is hope, what should be our long-term strategy? How long will the human species remain on Earth?

D. Justifications:

- To investigate this black box known as the Universe, one needs to understand how its complexity is the result of a tension between order and chaos.

We want to know what info-communication impulses transformed the original “soup” of simple molecules into the first living cells and what the origins of life from millions of years ago can tell us about technological innovations today. Are they the result of randomness?

Of particular interest is how Darwin’s random process of natural selection could have created such a complex system as humans. Is there a kind of intelligent external engagement in info-communication? It is certainly a dynamic process and it cannot be driven solely by transformations of “dead” matter. What controls this transformation? If we use the term “control,” it suggests the existence of a “signal” as well as the flow of information in the channels. Needless to say, this kind of process will lead in the coming centuries to a new paradigm in regard to the architecture of the Universe.

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