

[Essay]

The Fading of Human Civilization

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Abstract

Human civilization is fading away, as humans are gradually transforming into a different kind of beings based on technology that will essentially redesign their nature. This process is difficult to monitor or control while being preoccupied with everyday life and survival. At present, this transformation relates to technology as an extension of the human mind and body. However, with time, humans will progressively incorporate technology into their bodies through various types of enhancement, so that human functioning will be increasingly based on technology rather than biology.

The natural world and evolution have been indifferent to human beings and their values, as they are thrust into the Darwinian world of natural selection and the struggle for survival. A relatively brief human life, which is ruled by chance and driven mostly by the primal instinct to survive, is filled with uncertainty and a myriad of challenges and constraints. Nature is indifferent to human concepts such as justice and morality, good and evil, empathy and compassion, and purpose and meaning. To a certain extent, this indifference of nature is in turn reflected in the indifference of humans towards others and towards nature, which also results in the alienation of humans from a seemingly meaningless world.

Having evolved as imperfect biological beings in an imperfect world, human beings have to endure both physical and psychological suffering, such as various diseases, physical injury, fear, and despair. This is hardly the best of what is desirable or good for humans, who are not content with being born into this fleeting and fragile existence, but try to explore ways to control their own future. Through self-directed evolution, they strive to transcend the constraints of their biology and random genetic mutations. The prospect of facing an uncertain future and the possible extinction of humanity acts as a catalyst for increasing the probability of human survival.

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Prophecy is futile in general. However, some developments, such as enhancing human intelligence and prolonging life, are so desirable as to be almost inevitable. By making choices on specific technologies today, humans are in effect establishing the future direction of self-directed evolution. The anticipated outcome of self-directed evolution is the emergence of a posthuman civilization of beings with greatly enhanced cognitive capacities and longer lifespan.

The converging fields of biotechnology, nanotechnology, information technology and cognitive sciences promise a wide range of benefits. The future of human experience is intricately linked with these emerging technologies, although there are many risks associated with them. These technological developments, including the merging of human and machine, will require a new definition of human being, as well as corresponding conceptions of human identity and the nature of society. Although these technologies offer countless new possibilities, they also create new challenges that cannot be anticipated or controlled. Some of the primary risks are related to possible harmful effects on humans and the environment, as well as to accidental and intentional misuse of nanotechnology and genetically engineered biological agents. Humans are able to develop new technologies, but they are not always able to resolve the problems caused by these technologies.

The future of human intelligence is related to these technologies. The main developments relate to neural enhancement, artificial and machine intelligence, and collective intelligence, which may significantly enhance human intellectual power. The emergence of cybernetic organisms, or cyborgs, the diminishing boundary between humans and machines, and the corresponding identity formation will generate more issues. These developments may eventually lead to the emergence of entirely inorganic beings with artificial intelligence.

All these developments, including incorporation of computer components to augment brain functions, have important moral and ethical dilemmas and implications, as they may eventually allow personal thoughts to be accessed with consequent loss of privacy and autonomy. This could also lead to a reevaluation of how individuals view themselves, as well as how individuals relate to each other in a society. Those without enhanced brains would be treated as inferior beings, resulting in discrimination and social inequality. In this context, major issues of concern include maintaining cognitive liberty and the freedom of thought, as the contents of the memory could be edited, with

implications on whether the integrity of the mind is under internal or external control.

Human transformation is relatively slow compared to human perception and interpretation of these changes, which are nearly unnoticeable in everyday life, as the change occurs slowly, day by day, to allow the society to continually adjust to innovations, and as the limits of what is permissible are being adjusted little by little over time with shifting baselines. The problem is that, with the human inability to perceive the incremental changes, there may not be a sudden realization of the transformation, especially when these changes are interpreted as being beneficial to humanity in terms of prolonging life or alleviating pain or enhancing cognitive abilities. In general, scientific and technological advances have been largely perceived as beneficial for humanity, as they typically resulted in a wide range of practical applications in various areas. In addition, technological development is also perceived as the measure of progress of civilization. However, concerns of loss of control over technological development and of misuse of technology are always present.

Although inorganic beings with artificial intelligence can be imbued with human traits and emotions, they will still lack those that are intricately linked with biological processes in the human body, including the brain. Without the biological body, many human traits may prove to be impossible to reproduce in inorganic beings. These relate to such physical states as pain, hunger, thirst, fatigue, and aging, and physiological needs such as food, air, and sleep. Posthumans, having no biological body, will not grow up and mature emotionally. Throughout their lives, humans experience uncertainty and struggle and pain and suffering, which lead to creativity and imagination. The absence of these experiences can limit some aspects of posthumans. Another important question is whether artificial intelligence can be self-aware. Although artificial intelligence can be programmed to exhibit emotions, it is important to consider whether these are genuine emotions or whether they only give an impression of authenticity.

One of the underlying themes in the lives of human beings is the realization that they are born to die. This gives them an imperative to create and imagine things, such as God and immortality and compassion. Human beings develop and learn and eventually acquire some measure of wisdom with aging, which is among other things is a gradual awakening from illusions, with the irony that when one is fully awoken at the end of life, one departs this world. The human

perception of time flow, combined with anticipation of death, is central to human appreciation of life and the seeking of meaning of human life. Human life and aging, which proceed at a relatively slower pace compared to machine learning and which are inundated with emotions and various ideas and concepts, lead to certain kinds of intelligence and wisdom that are necessary for imagination and reflection. The critical question is whether the transformation to posthumanism will diminish human traits such as curiosity and imagination and creativity and critical thinking and ethics. It is vital to ensure that these and other human values and virtues are retained, as they are important skills for survival in the world.

The question is, are humans wise enough to know who they want to become? Are they intelligent enough to direct their own evolution? Can one anticipate the consequences of self-directed evolution based on present knowledge?

For most of human history, technology has been relatively benign. Initially it was used only to enhance human faculties. However, the present vision of the future is almost entirely determined by technological development. Thus, from the humble beginnings of technology as a tool, it became the driving force of human civilization. One of the issues of concern is the disparity between technological advances and moral progress, which makes the risk of human-made disasters more unmanageable. Since the development of new technologies cannot be stopped or reversed, whether for better or for worse, it is essential for ethics to become equally important and an integral part of technological development.

Another issue of concern is that although society is becoming more dependent on increasingly complex technologies, the general public and, more importantly, decision makers are becoming increasingly unaware of the intricacies of technology and its implications for society. This is further exacerbated by the fact that as technologies become more complex, they also become more vulnerable to failure, including the possibility of cascade failure on a large scale.

In addition, an increasing amount of information is being generated in various areas, but one cannot possibly fully interpret and understand all of the complexities and consequences. Thus, technology is becoming more invisible, which also makes it increasingly difficult to identify and address the risks involved. Naturally, the ultimate challenge is to identify risks as early as

possible. However, as technologies and their applications are typically viewed positively, new developments are not always evaluated with sufficient caution and are casually accepted. In this context, as technologies are becoming more complex, human nature remains essentially the same: self-centered, short-term oriented, and inconsiderate of social and ethical consequences of technological development.

As the future trajectory of humanity is being determined today, there is an apprehension that, while technological developments can bring great benefits to human beings, they could also lead to the end of humanity. In the near term, except for some cosmic or natural disasters, the threat to humanity comes from human actions. These include disasters such as nuclear warfare, environmental degradation, human-made artificial intelligence taking over the world, uncontrolled nanotechnology, and unintended consequences of technological development.

Humans think about the future in terms of not only what is possible, but also what is desirable, which can lead to exaggerated expectations. Although there are myriad possibilities open to humans, technological outcomes are limited due to the constraints of physical laws and the complexity of the experimental design. The future is never as imagined by previous generations; the limitations and imperfections of any human design typically dampen expectations. In this context, it is important to consider some of the human biases that are of major concern for anticipating future problems. These include, for example, illusion of control (the tendency to believe one can control or influence outcomes that one cannot), and positive outcome bias (the tendency to overestimate the probability of a favorable outcome) and related optimism bias and wishful thinking about the future.

Engineering is design under constraint. The limiting factors include the physical laws and properties of matter, economic considerations, material resources, manufacturability, reliability and safety, environmental impact, and ethical issues. The considerations for each of these constraints typically require compromises in design and capabilities, which may not have the best characteristics due to the impossibility of optimizing all individual constraints at the same time. In addition, in principle, all technological systems can fail. This is especially true for increasingly complex systems. One possible solution in this case is to introduce some redundancy in the system. Nevertheless, risk of failure cannot be reduced to zero.

Past technological advances have resulted in great benefits to humanity. However, positive past experiences cannot guarantee that future outcomes will be equally beneficial, as new technologies can become exceedingly complex and unmanageable, making it impossible to predict their implications. If humanity fails to anticipate and control the consequences of its actions, it may face extinction. Such an outcome would resonate with the Fermi paradox, the apparent contradiction between high estimates of the probability of the existence of extraterrestrial civilizations in the universe and the lack of evidence for their existence. Among many possible explanations of the Fermi paradox, some relate to the complexity of satisfying the conditions for genesis of life and its evolution to a technologically advanced level, or the possibility that technologically advanced civilizations may exist for relatively brief periods of time and perish from human-made or natural disasters.

The important question is: What is valuable about human beings? The essential human uniqueness relates to intelligence and the ability to reason and communicate symbolically, which lead to human creativity and other thinking skills. Nevertheless, although the human brain is considered to be the most complex structure in the known universe, it is still constrained by the laws of physics and its evolutionary origins and the limited memory capacity.

As biological organisms, human beings are subject to random mutations on a genetic level and random events in life. In spite of constant efforts to reach out to the world, each human being is alone in life and death, and thus has a distinct vision of the world. Human beings are typically shortsighted. The struggle for survival takes priority over other considerations. This human condition is one of the main causes of permanent conflict and despair in an indifferent world, in which each person is immersed in their own virtual reality and silence and thoughts and memories, while anticipating the future to unfold in unpredictable ways. Some of the thoughts and views of different individuals overlap sufficiently to consider humanity as a whole, but in fact it is divided by self-interest and culture and religion and politics.

Human beings generally have an inflated and burdensome sense of self and ego, and are preoccupied with random thoughts and distorted perceptions of themselves and the outside world, as well as with the mystery of the unknowable. Humans are often driven by emotions, beliefs, desires, traditions, and fears, rather than logic and reason. They are easily manipulated by ideologies and wishful thinking, and prefer illusions to reality, which makes it difficult to

distinguish between fact and fiction. For many, life is spent in virtual reality of religion filled with phantasmagoric images and utopian visions. The fundamental dissonance of human life relates to the individual's perception of being the hero of one's own story, in which the individual is the central character who justifies own actions; but in fact human life is an insignificant episode in the evolving cosmic drama of creation and destruction processes on various scales.

In this drama of human existence in the universe governed by the probabilistic laws, one of the greatest illusions is that human beings are an inevitable outcome of the evolving universe. Although it seems that the laws of nature are suitable for the emergence of life, cosmic evolution appears indifferent to human survival, since the accumulation of many relatively small random changes in natural conditions could, in principle, preclude the evolution of advanced life. And if something happens by chance, it is not certain to occur at all. Thus, it is a question of probabilities, not certainties, and possibly the emergence of life and human intelligence is an evolutionary accident.

The critical question is: What is more important, the survival of human beings as a species or of intelligence? Humanity, with all its emotional drama and cognitive biases and self-destructive tendencies, may not be the best choice for the survival of intelligence. Although one cannot determine with certainty the meaning of the universe, it is unlikely to be a drama associated with human beings who have an illusory sense of self and are highly irrational and shortsighted.

If technological developments for the sake of the survival of intelligence lead to complete transformation to unbiased and rational beings, then so be it. This could be one of the greatest dramas of human existence: in order to give better chances for the survival of intelligence, humans must transform themselves into posthumans.

Imagine humanity or its successors surviving the next millennium and living in harmony with nature and within an enlightened society, free of tribalism and religious or political divisions and conflicts. Imagine a civilization, a technological civilization, which is based on moral values directed at maximizing the potential of each individual whose personal boundaries are valued implicitly. Imagine a society that is free of prejudices and dogmas, whether religious or empirical. Imagine an individual with enhanced intelligence, without cognitive biases, and with the resolve to think and act for the good of all.

But can human beings, with all their flaws and contradictions, design better beings and society? Will posthumans still remain burdened by ego and self-interest and, like humans, be divided by differences and conflicts?

Nearly everything organized by humans is flawed. The problem for society is how to deal effectively with the fundamental human needs for power, status, hierarchy, recognition, and competition. The problem for the individual is that human existence necessitates both social and economic adaptation, along with associated attributes of egocentricity, resentment, anxiety, and uncertainty.

Human beings hold the key to self-directed evolution, which is a radical shift from random mutations and natural selection. It is vital to know whether the key opens the door to a better future for all or the gate to a dystopian society without individuality and privacy. It is imperative to distinguish between these two alternatives. This requires ethical wisdom drawn from the disquieting past and a deeper understanding of the fragile nature of humans, who are in a constant struggle for survival, and of humanity that is under the constant threat of extinction.

Advances in technology are inevitable and cannot be stopped or reversed, technologies always have unintended consequences, all technological systems can fail, and risks associated with them can never be completely eliminated. In addition, technological and social systems interact strongly, and the decisions and predictions about the use of increasingly complex technologies become more difficult. Technologies evolve much faster than natural human evolution. The crucial question is how to anticipate and control the consequences of these technological developments. How can one possibly control what cannot be fully anticipated?

Technology is neither the savior nor the nemesis of humanity. It is how humans overcome their egos and biases and ignorance and differences that will enable humanity to find the optimal uses of technology. Although it is impossible to foresee all the consequences of the development of new technologies, one can nevertheless try to control, through legislation and regulation, initial and subsequent steps of their design, performance, and applications, with continuous monitoring and feedback of their impacts on society and environment. The regulation of technological development must be global. In this context, one of the solutions could be the establishment of the independent global regulatory and monitoring framework with enforcement powers for greater control of technological developments. Because of the inertia

of bureaucratic organizations, it is essential to anticipate new developments in advance, as well as to provide real-time monitoring processes with active feedback mechanisms. The regulatory and monitoring system may hold back the development of potentially risky technologies and advance the development of safe technologies. However, a complete ban or very strict regulation will inhibit potentially useful developments and eventually lead to stagnation. Thus, the challenge is to find a path, however narrow, between these extreme cases.

It is impossible to know for certain how the future will unravel in a probabilistic universe, and how future generations will handle the inevitable advances of technology that will dramatically change the human species. In several centuries, the emergence of a different kind of being and a different civilization may become reality. Human biology is not suitable for the harsh environment of space travel. Perhaps there will emerge more capable and survivable beings, who will function not on the basis of biological metabolism but on other sources of energy, and they will roam the universe, as their human ancestors were roaming the earth, in order to explore and discover new worlds. These beings will be more resilient to endure the passage through the space of the universe, and they will be more capable to populate other planets in order to increase the chances for the survival of intelligence. It is also likely that posthumans will continue to reengineer themselves, with an outcome that is hard to predict. However, irrespective of the chosen trajectory, future development will always be risky, as it is impossible to eliminate all risk in an imperfect world.

The transformation of human beings into posthumans will not resolve the question of incommensurability between finite beings and the complexities of the universe. An advanced intelligence can improve understanding of the universe, but it will be unable to identify the ultimate purpose and meaning of the universe and existence. The only tangible meaning can be found within the limited space and time, in which finite beings exist, and in relationships with others. The part cannot encompass the indefinable whole, and perhaps this immeasurable disparity is the greatest challenge for any intelligent beings to endure. Posthumans will also have to endure an indifferent universe whose ultimate purpose remains elusive. And, similar to humans, they will have to endlessly roll a rock up a mountain like Sisyphus in a seemingly purposeless process and find meaning in the struggle.

In the final analysis, perhaps what matters most is not only knowledge and

intelligence, but also the wisdom to preserve what is best and to discard what is worst in humanity. Human values, such as justice and ethics and compassion and curiosity and imagination and wisdom, are necessary for having some meaning in life. They must be integrated into any intelligence, whether it is naturally evolved or artificially constructed. Although not universally held, these and other human values are essential in life, as without them the existence of beings with advanced intelligence will remain meaningless.