

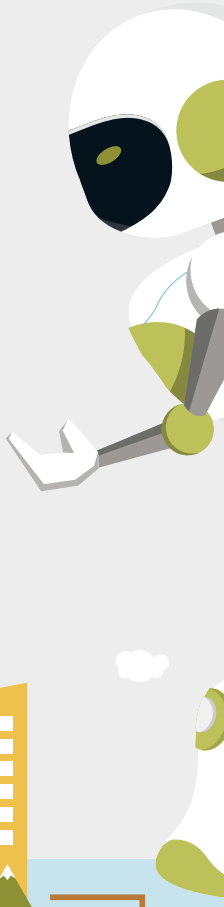
TRANSHUMANISM

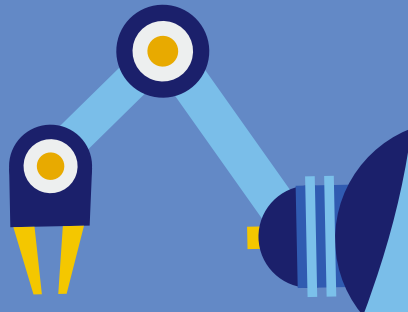
MOVEMENT:

THE ETHICS OF

THE FUTURE HUMAN

TRANSFORMATION





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Introduction

The role of technology allows us to minimize the threats that have been haunting mankind. Especially with the emergence of quantum computers, artificial intelligence, nanotechnology and biological engineering, increasingly provide opportunities for scientists to continue to experiment in creating technological innovation. Interestingly, the current technological developments lead to the merge of machines and humans. Elon Musk, CEO of SpaceX, says that humans need to merge with machines (machines capable of supporting all of the human activities) in order to survive in the future.ⁱ

Musk's speech shows that technology is not only seen as a separate device with humans. However, technology becomes part of the human being. Technology as part of the human self is defined as “technology that is assembled the human body either permanently or temporarily.” Meanwhile, engineering technology that implanted into the human body has a variety of forms.

Installation of technology in the human body would result in morphological changes. With the machinery in the human body, man is no longer organic but also (half) nonorganic. Later on, the non-organic man is a superhuman in the future who has excellent endurance and ability. This human is called transhuman. The phenomenon brings us to the era of transhumanism, an intellectual movement that believes that human transformation can only be passed by adopting the technology, while those who support this movement are called transhumanists.

We have begun to enter the era of transhumanism. The lightest sign is human dependence on technology both in daily activities and work. Meanwhile, the development of technology is increasing rapidly. Currently, scientists are developing nanotechnology to transform human DNA. This became the beginning of the significant phenomenon of the era of transhumanism.

Considering the increasingly visible signs of the emergence of transhumanism, this case study aims to explain the era of transhumanism and how the implications will be in the future. There are four parts to be described in this case study: (1) exposure to transhumanism, (2) examples of transhumanism in four areas and the implications (3) transhumanism and social inequality and (4) the ethical challenges of transhumanism. This case study is completed by collecting data from various credible sources and extensive literature to understand and analyze the era of transhumanism and its implications for the future.

Transhumanism: The Movement to Enhance Human Capability with Future Technology

Transhumanism is defined as a movement to modify the human body with various technological and scientific developments.ⁱⁱ The modification aims to make human beings have the extraordinary ability, strength, and endurance, in the physical, psychological and biological aspects. Some of the technologies that are currently being developed and started to be implanted into the human body are digital technology, bioengineering, nanotechnology, artificial intelligence, and so forth. The human body that has been implanted with various technologies is called a transhumanⁱⁱⁱ while the people who support this movement are a transhumanist.^{iv}

Francesca Ferrando, explains that transhumanism aims to improve human life. Ferranda explains that in the future, these problems can be addressed in the presence of emerging and speculative technologies.^v Ever since we strive on earth, humans always try to keep improving our lives. The evidence is apparent, starting from developing medical technology to support health and creating a variety of transportation innovations to facilitate human mobilization.

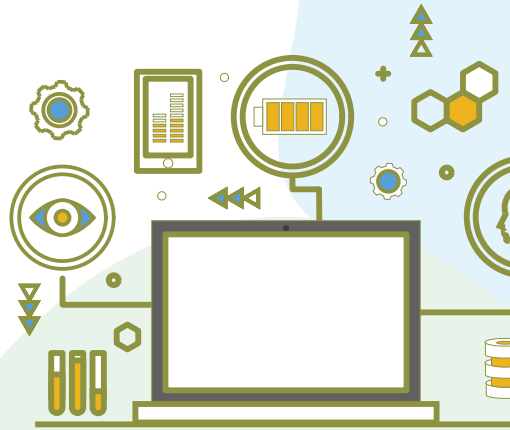
Nevertheless, the transhumanism movement transcends the efforts of previous humans. Through this movement, the transhumanists wish to overcome all kinds of problems experienced by humans. It can be said that technological implants in the

human body are done to eliminate - or at least minimize the problems encountered by humans today. Today's emerging technologies are helping humans to prevent various types of diseases, assisting human activities to like seeking information, as well as accelerating and streamlining various jobs. Beyond today's emerging technologies, transhumanism aims to increase human capacity through technological engineering.



Transhumanists hope, in the future, humans can overcome aging and live eternally.

Sarwant Singh, Senior Partner in Frost & Sullivan, as he explained in his writing on Forbes, three aspects will be influenced by the movement of transhumanism: bodies, thoughts, and behaviors.^{vi} These three aspects will be described as followed:



a. The Augmented Body

The addition of specific machines and technologies into the human body becomes an essential aspect of the movement of transhumanism. Transhumanists believe that technological engineering can enhance human (biological) abilities. Not only that, but the technology is also considered to provide the unity of human capacity. Some examples of predictions of human body modification through technology are lens contacts that allegedly can take photos and videos automatically, universal language translator earbuds, body hacking, nanobots, brain implants and many other technological developments to be injected into the human body.

b. Enhanced Thoughts

In addition to improving the physical and biological capacity of the body, technological engineering in the transhumanism movement is also done to improve the human mind. Some of these are brain-machine interfaces allow people to communicate fluently without misunderstanding. Therefore, the conversation that occurs is made through the machine contained in the brain so that the core of the conversation can be absorbed and even transferred easily. Also, other technologies are created to increase the capacity of the human brain that is neurostimulation, nootropics, and virtual reality. This technology allows people to have a much faster thinking ability, more stable emotions, and sustainable. Not only that, but this technology also makes humans can transfer their thoughts to other people and machines.

c. Changing Behaviors

Singh explained that behavior is also part of an essential aspect of the era of transhumanism. Human behavior in the age of transhumanism will be influenced by collaborative studies of behavior, gamification, and artificial intelligence. In the future, governments and corporates will apply the collaboration to the community. Through technological engineering on the behavior, people are expected to be more efficient, work more optimally, more empathetic, more communal and collaborative, and motivated.

The three aspects of the transhumanism movement are interrelated. Human enhancement which is the goal of the transhumanist aims to improve human capabilities beyond the previous standard. Thus, human beings can overcome the problems experienced in the past. Transhumanists hope that humanity in the future will be faster, more precise and effective because one of the transhumanist desire is a certainty.

Transhumanism and its implication in Communication, Medicine, Economy, and Transportation

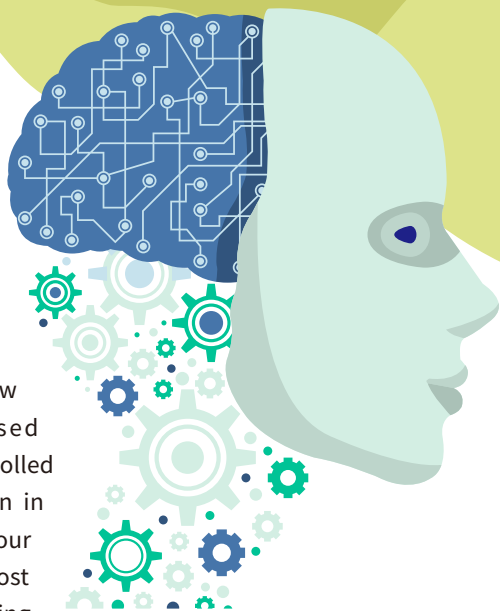
The transhuman revolutionaries seek to redefine humanity based on the three fundamental pillars of evolving humans: human bodies, human thoughts, and human behaviors. Bodies will be augmented, thoughts will be enhanced, and behaviors will undergo changes in the future. Humans will be enabled to have so much more capabilities. Therefore, inevitable modifications are waiting – and in the making – for several fundamental aspects of humanity. Those extractable aspects include medication, communication, economy, and transportation.

a. Medicine

Humans are confined in bodies that are lacking or imperfect in some cases. The urgency to enhance the given human body capabilities is irresistible, as seen on the first officially recognized cyborg in the world, artist Neil Harbisson. Harbisson has

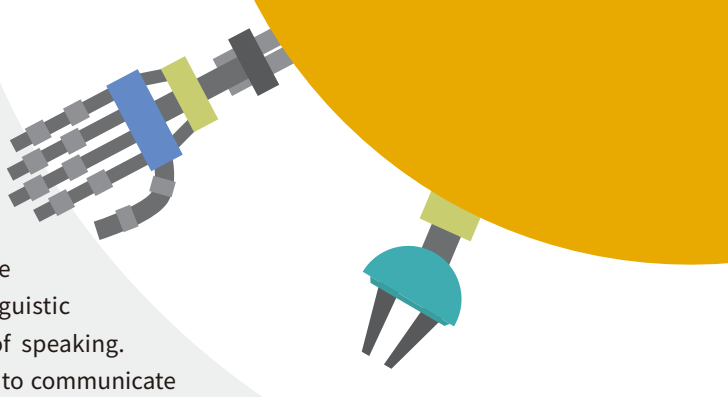


antenna
e implanted
in his skull to help
him see colors or receive
information through audible
vibrations and also receive signals
from satellites.^{vii} Clearly, a cyborg is
only the start of a transhuman era. A
lot of cyborg upgrades such as
hearing and vision enhancement
similar to Harbisson's will be more
available in the next couple of decades.
We can expect *exosuits* that allow
physical movement with increased
strength and endurance, a mind-controlled
prosthesis, a biological augmentation in
the form of enhancement directly into our
genomes, the ability to select the most
intelligent embryos, and a gene-editing
technology that can interfere genes by replacing the bad ones with the good ones. A
gene therapy can even diminish heritable diseases.^{viii}



Science-fiction movies these days have plenty of times depicted the cryonics technology, and that exact technology has, in fact, become available and in progress today. Humans in their given normal state will eventually die and decay, but transhumans may find their way to cheat death, as the cryonics technology offers. Cryonics is a transhumanist technology to preserve the human body and brain after death in anticipation of possible future revival by freezing it with cryoprotectant (antifreeze) mixture. In fact, cryonics technology is already available today.^{ix}

In the aspect of medicine, transhumanism movement focuses on improving the everyday experience as well as increasing human abilities. Cybernetic systems may let humans hear a broader range of ambient sounds, view a vaster collection of stars, and be resistant to accidents that may cause further physical and medical damages.

An illustration in the top right corner shows a stylized robotic hand with grey fingers and a blue wristband, reaching towards a yellow circular shape. Below it, a teal pen nib is shown writing on a surface.

b. Communication

Communicating one's thoughts to another human are limited based on linguistic abilities and speed of speaking.

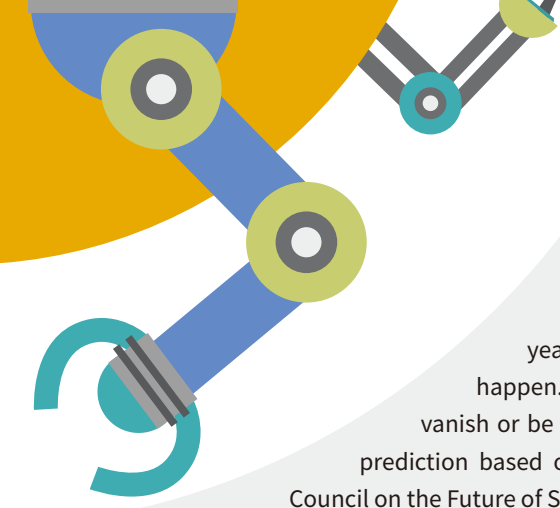
Technology allows us to communicate with each other through devices, but that form of communication is also limited to linguistic skills and the speed of the words we can type. Eventually, these forms of communication will not be sufficient, as wearable and implantable brain-machine interfaces (BMIs) are in development. Elon Musk's Neuralink and Mark Zuckerberg's Facebook are one of the organizations developing these devices.^x BMIs enable communication at the speed of thought in the state of thought itself – full and unbothered by linguistic barriers, complete with sensory and emotional inputs to best communicate human thoughts. This technology is expected to come to a full circle, with the arrival of other complementary technologies such as universal language translator earbuds and contact lenses that can take pictures or video in the future.

A similar case of future universal communication takes the form of virtual reality, where VR can be used to comprehensively depict a situation in one place and be shown to humans in other areas. VR can deliver emotional inputs as well and give us the chance to step into others' shoes.

In dystopian science fiction entertainment, mind uploading has been quite popular, but the real future of transhuman may be even more familiar with the concept. Mind uploading or nonbiological intelligence technology makes human brains out of flesh interchangeable with artificial brains. It will then be possible to manufacture a brand-new human being complete with the exact same memories of a living person before.^{xi}

c. Economy

The world's industrial work is dominated by manual labor, but that won't be the case anymore in the future as there will be robotic self-replications. These robots can reduce expenses step by step due to their efficiency. Eventually, a factory shall be able to work autonomously with self-replicating robots to produce mass quantities products. Then, self-replicating factories can even do much more



wonders for even more significant economic profits.^{xii}

The rise of artificial intelligence (AI) in commercial settings will be inevitable too, as it is predicted that by the year 2020 the Fourth Industrial Revolution will happen. New jobs will emerge, and some jobs will vanish or be replaced by technology. Forbes has stated a prediction based on World Economic Forum's Global Agenda Council on the Future of Software and Society's survey, that by the year 2026 companies will have an AI machine as a member of their board directors. Employees of a company will have AI counterparts or work side by side with AIs, and companies may soon attempt to heighten employee focus and skills acquisition by sponsoring nootropic supplements and neurostimulation devices.^{xiii}

d. Transportation

Ready or not, human transportation will revolve around automatic transports and machine learning. Tesla, Mercedes, and BMW have made some self-driving features available on some of its vehicles, but transportation technologies still step up their games by innovating with machine learning and creating systems where vehicles can absorb, learn, and respond to data from their environments with the help of sensors, cameras, and software. Cars will drive themselves and reduce the risk of accidents, trucks will go auto-pilot without human intervention to make deliveries and thus improve efficiency, cargo ships at seas will transport goods by remote controls, and even drone air taxi or aerial vehicles will be the next form of accessible transportation.^{xiv}

An era of transhuman with future technologies means great change, and great change will inevitably bring complicated, multilayered implications upon the society. On the medical grounds, body augmentation capabilities will give humans more resilience as well as optimization. It will also lead to implications around which job opportunities and what sports competition hierarchies are available to those with and without augmented abilities.^{xv} We have seen questions raised regarding possible advantages from leg prosthesis used by runners. Other than that, it raised questions of espionage risks via contact lens camera hacks.

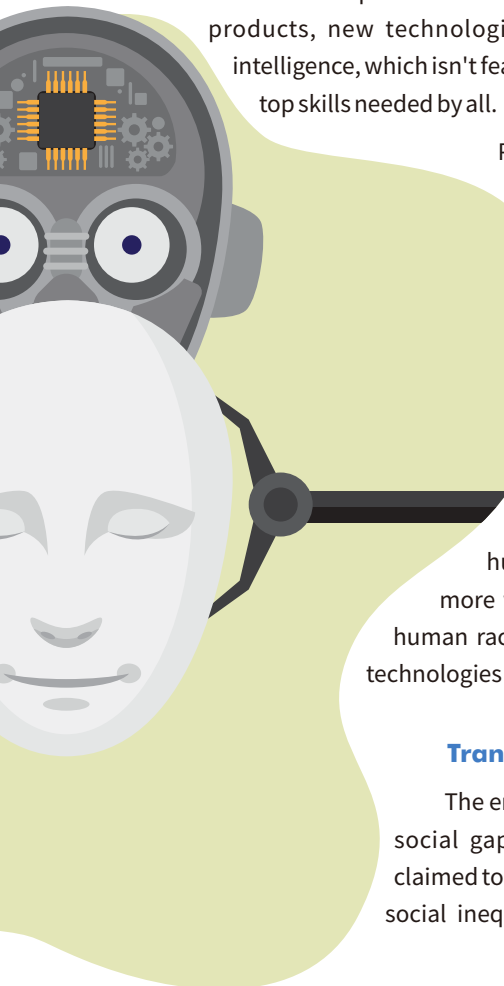
No scientist has yet performed gene therapy due to the ethical controversy of producing genetic changes which are heritable, but it may as well be just a matter of time. Countries may have different views and therefore generate various regulations regarding this issue, although the field will undergo significant progress in a few years' time.

The overall economy will be improved by enabling us to work more efficiently – less time, more things get done, all for better pay. In the long run, enhanced humans may do better economically than un-augmented humans. Robots may help us get to places we want faster, but they can't be as creative as humans (yet). It will even shake up the top 10 list of skills needed from human, where skills such as human negotiation and flexibility may be replaced by data-based decision-making from machines. Therefore, creativity will become one of the top three skills workers will need to benefit from changes of new products, new technologies and new ways of working.^{xvi} Emotional intelligence, which isn't featured in the top 10 today, will become one of the top skills needed by all.

Poverty and curable diseases will not be the leading cause for human sufferings. The nature of human work would shift from routines and manual labor to more creative and personally fulfilling endeavors like art, music, math, science, literature, and exploration. But on the downside, we will see the emergence of extreme personalization and customization. Changes in medical, communication, economic and transport aspects shall shake humanity enough to question everything. Even more worryingly, there will be the risk of a stratified human race based on those who can afford transhuman technologies and those who cannot.

Transhumanism and Social Inequality

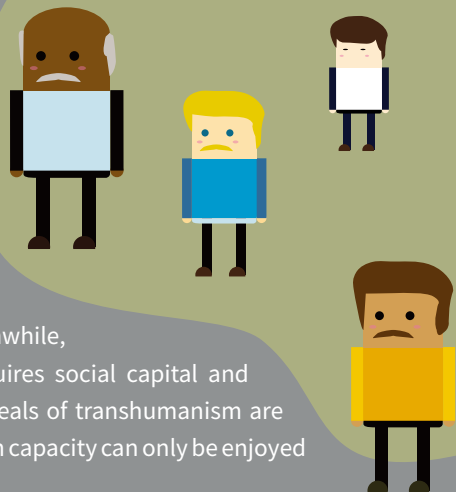
The era of transhumanism is predicted to cause wider social gaps between classes. Basically, technology is claimed to have contributed substantially to the increase in social inequality.^{xvii} Stephen Hawking warned that grea



technological progress could further impoverish the lower classes.^{xviii} On the other hand, Brynjolfsson explains that the most significant factor causing social imbalances due to technology is that tech-based economies are controlled only by a handful of people. Technology is only owned by small groups so that the elites are the only ones who enjoy the benefits. In fact, the advantages of a technology-based economy (digital economy) are quite large and significant.^{xix} Also, access to technology is also limited because we have to pay for most of them. Meanwhile, only the elite class has enough capital to access it. Thus, the main problem of social inequality resulting from technological advances is the uneven distribution. In developing countries, social inequality is increasingly visible because the boundary between the rich and the poor becomes clearer.

In the case of transhumanism - the role of technology is increasingly contested and complicated. The era of transhumanism has marked that humans will always be dependent on technology. Meanwhile, dependence on technology necessarily requires social capital and enough capital to access it. Moreover, the ideals of transhumanism are human enlightenment. This increase in human capacity can only be enjoyed by the elite class because of limited access.

Francis Fukuyama is concerned that social inequality will eventually increase with the presence of the transhumanist movement.^{xx} Besides that, Lilley explains that “human community may suffer a schism with extreme social inequality between traditionalists and those swept up in the spiral of social competition/augmentation.” According to that, the traditional people still exist, and it would be difficult for them to survive because everything is being digitized. Also, this movement can also lead to discrimination in other forms, because transhumanism resulted in the morphological transformation of the human body. This transformation emphasizes benefits on health, longevity, and ability. Groups that do not have access to this movement will undoubtedly have significant differences compared to transhumanism groups. Transhuman is healthier and stronger



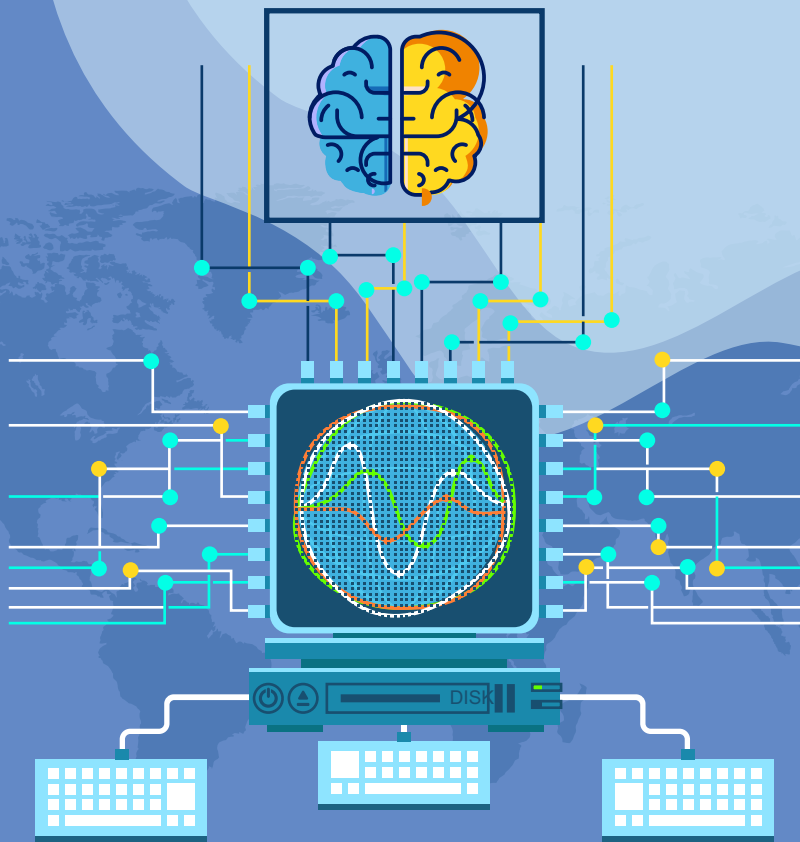
than ordinary people. Of course, the extraordinary ability is increasingly shifting groups that do not have access. The most obvious example is in the work environment. Transhuman - with his superhuman abilities will replace ordinary humans. This will undoubtedly increase poverty. Because, there is an excellent competition, both by humans, transhuman, and machines.

Technological advances should make it easy for humans. Therefore, everyone must have access to the movement of transhumanism by their consciousness. The government should facilitate its people to have access to technology. Also, the government must also protect people from technological dangers. Every citizen in the world has the right and opportunity to enjoy access to technology. Governments, scientists, and transhumanism service providers must formulate the best way to anticipate social inequality and discrimination. One of them can be by facilitating public access to the various technologies brought by transhumanism. In addition to that, the government also ensures that all of its citizens (regardless of social status) have access to appropriate and appropriate technology.

However, overcoming the social inequality due to technological advances, especially transhumanism will be a little tricky in developing countries. Technology is not only a national but also a global issue. Social inequality will be more visible between developed and developing countries. This can lead to the superiority of developed countries in developing countries because of such technological advances. The ideals of the transhuman movement are indeed something good - human enhancement. However, the human enhancement should be enjoyed by all people.

The Ethical Aspects of Transhumanism Movement

The primary purposes of transhumanism movement are enhancing human ability. Transhumanist is dreaming a life without problems. They don't want to get misunderstanding while starting a conversation with others. They don't want to get sick quickly. They even want to live eternally. In essence, they want to reduce, even eliminate the distress and sufferings experienced by humans. It can lead the modification of the body, enhancement of human thought, and the improvement of better behavior. Indeed, transhumanism is a good idea. But they went too far. Changing humans, both from the physical, biological, and psychological aspects will have a particular effect. It raises ethical questions. In this case, we would focus on revealing ethical elements of digital transformation in the communication aspects of transhumanism movement: mind uploading and brain-machine interfaces (BMI).



a. Mind Uploading

Immortality is one of the goals of transhumanism movement. However, it raises questions about the future of next generation. What will happen with the population if nobody dies? Ray Kurzweil, give an alternative to live immortality digitally. He believes that we can transfer our consciousness to machines.^{xxi} That's what we'll call the mind uploading. However, once again, it raises the ethical questions. First of all, as the mind is saved in computer or another digital device, it would be difficult to distinguish between “people” and computer program.^{xxii} This will obscure our understanding of humans and how to interpret them in the future. Because, physically, humans have changed. Not only that, but these changes also tend to make humans the objects rather than the subjects.



In the future, it may be bizarre when we talk to humans but do not encounter him/her at all, but we meet him/her through computer software. This will change the way we perceive things, the way we communicate, and the way we socialize in the future. Imagine when you entirely socialize with other people through digital devices. We may have experienced these things with social media. But, still, it would be different when you know that you would never meet him/her in person. Maybe you would upload your mind too, later on, but how do we communicate as “uploaded minds,” because our lives and existence are tended to the machine. If the machine is dead or even damaged, all forms of interaction cannot happen. The person - as an uploaded mind - may only be an object - not really “alive.” Secondly, human as a whole consists of consciousness and unconsciousness. When human immortality is pursued only through consciousness, man is no longer a whole. We may have to redefine humans once they become “uploaded minds.”

We have to rethink the immortality through the digital world. At least, we must know why we must be immortal. What exactly is our goal when we become immortal? Why do we have to live forever? We think we should consider the right reasons why we have to be eternal, other than the ambition of oneself.

b. Brain Machine Interface

Brain-machine interface will be a game-changer as we will no longer be confined to communications by our peripheral nervous system's ability to communicate. However, this inevitably will bring several critical ethical questions. The first ethical question is regarding privacy. Many of us have surely thought things we

refrained ourselves from saying out loud. However, BMI-users may run into a problem when their BMIs take action on that thought and execute an unwanted response the user wanting it to happen intentionally. Will that be the BMI users' fault and responsibility?

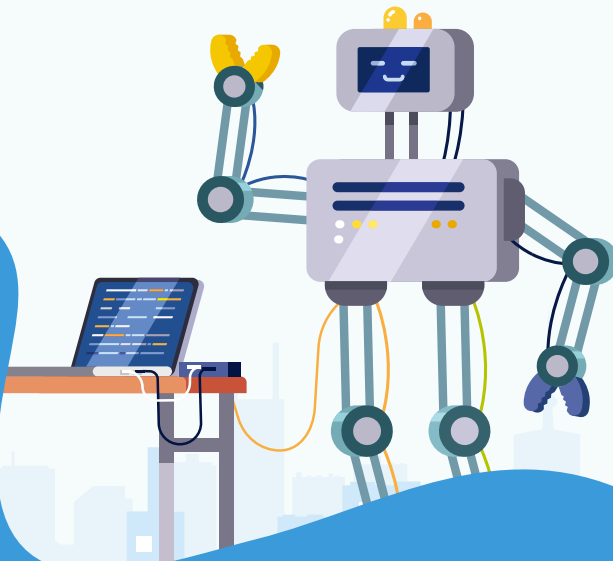
Another ethical question is regarding humanity and personhood. We fear the integration of human and machine may make one less human, mainly because it changes one's social identity, body scheme, or individual psychological aspects.^{xxiii} When people integrate themselves with BMI, will they no longer be themselves? All their identities and their actions – are they the technology, or are they 'the human'? The crisis runs deep in the philosophical mode of the transhuman changes. If we are to become integrated with BMIs, we should reexamine whether it helps us more than it changes us.

Conclusion

There is no denying that transhumanism offers vast possibilities to look out for in the future, but it has been a concern how social inequality will increase as it will widen the gap between the rich and the poor, the developed and the underdeveloped countries, the powerful and the powerless. Other than that, transhumanist movement raises ethical questions as well on the appropriateness of transhumanism. Who gets to be transhuman? Will transhumanism create a new class divide where a specific elite class rises through other humans through physical and mental upgrades?



Transhumanism seeks to redefine human in the future. It will be inevitable for humans to depend even more heavily on technology, more than we ever did before. Maybe in a few years time, human will find it impossible to even communicate with each other without the use of Brain Machine Interface (BMI), and so on. The merger between human and technology is highly unavoidable, as the CEO of Tesla and SpaceX said about biological intelligence and digital intelligence merger being needed in order to stay relevant.^{xxiv} Many of the ideas of transhumanism are noble, but the field is accused of sharing traits with eugenics.^{xxv} Technological advances in fundamental aspects of life will lead to human redefinition into transhuman, and it will bring advantages as complex as the immediate ethical and social implications. As much as transhuman technology and the integration of men and machine are glorified or anticipated, it is essential to be fully aware of the whole and unavoidable ethical issues.



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