Supporting The Transhumanist Vision

An Examination of Whether Society Should Support the Transhumanist Vision

Thesis Submitted for the Degree of Master of Applied Ethics

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Abstract

The improvement of the human condition has been an aspiration of man from time immemorial. Through time, each era had its own view of how to achieve this shaped by the zeitgeist. This has evolved to the current transhumanist vision based on a reductionist materialist concept of human nature. This vision considers it is possible and desirable to fundamentally improve the human condition, preferably by technological means. Transhumanist prominent Bostrom (2005b, p. 9) states that there is a moral urgency for societal support to realize the transhumanist dream. This claim is examined, and the question addressed to what extent society should support the transhumanist vision. The underlying foundation and assumptions of the transhumanist vision are assessed to establish that it is certainly based on a reductionist materialist concept of human nature. It is analysed that this concept of human nature contains fundamental flaws and the implications of this are addressed. It is argued that the transhumanist vision is rather *a* worldview than *the* fundamental worldview. This nullifies the implicit justification for the moral urgency which leads to the analysis that society should not provide proactive support. However, society should provide moral support for the transhumanist aspiration of the improvement of man. Limited support should be provided to transhumanist technologies and endeavours that provide benefit to society that is non-exclusive to the transhumanist vision and this benefit outweighs potential risks and disadvantages to society. The extent of this benefit determines the extent of support that is appropriate.

Table of Contents

Introduction

The term transhumanism was first coined and popularized by the English biologist and philosopher Julian Huxley in 1957 when he published his, by now famous, article by the same name. For years the concept remained nothing more than a fringe ideology. In the early nineties of the last century, it was still only endorsed by a handful of prominent technology enthusiasts, regarded as visionaries by some and as oddballs by most. Since then, its popularity has grown, and in recent years it has been part of cultural mainstream. The number of academic supporters is growing and in many scientific and technological strives it has become more the underlying assumption than the hypothetical possibility. Part of the rising popularity of transhumanism is the rapid progress of what is known as NBIC technologies, these are Nanotechnology, Biotechnology, Information technology and Cognitive science. The advancements made in these field are enabling possibilities that so far have only been considered the realm of science fiction and are making other, still only theoretical, options seem achievable in the future, some later some sooner.

At the very essence of transhumanism is the belief that through technology and science, human cognitive, psychological, moral, and bodily conditions can be expanded and improved. Humanity does not have to be limited by the human condition but can become more and, most importantly, better than human. Suffering and premature death, or death altogether, can be eradicated. Importantly, transhumanists do not only see this as a possible option for the future, but they also believe that it is a future that mankind should aspire to. At first glance, this seems to be a worthy goal to pursue. That humanity has its flaws and limitations is not a topic of debate and who could be against the betterment of mankind? Improvement and progress are something humanity has always strived for and welcomed, so why would this be different when it comes to transhumanism. Technology has also rapidly evolved at an exponential pace making the idea seem a feasible option in the relatively near future. Looking at transhumanism this way, as a realistic path to improve humanity, it now almost seems ludicrous and unreasonable to be opposed to it. A main proponent of the transhumanist movement, Nick Bostrom (2005b, p. 11), even expresses the *moral urgency* of the transhumanist vision. The argumentation behind the claim that it is not just desirable but

morally urgent is that now every day 150.000 humans die that did not have had access to the technologies that transhumanists advocate for that could have either prevented their death completely or at least have significantly postponed it. Next to this, there are people suffering daily, for example from illness, and this could also be greatly reduced. Therefore, according to Bostrom, the technologies that the transhumanist ideal strives for should be made available as soon as possible. To realize the transhumanist dream it is necessary that society takes transhumanism as a guide for policy to support its vision in two main ways, by enabling the availability of the technology and by re-organizing society.

> *What is needed for the realization of the transhumanist dream is that [1]* ***technological means*** *necessary for venturing into the posthuman space* ***are made available*** *to those who wish to use them, and that [2]* ***society be organized*** *in such a manner that such explorations can be undertaken without causing unacceptable damage to the social fabric and without imposing unacceptable existential risks. (Bostrom, 2005b, p. 9, emphasis and numbering added)*

It also seems reasonable for society to support the transhumanist ideal. After all, progress and public health are topics that society at large is concerned with. There are already institutions and policies in place regarding the promotion of public health which coincide with a number of the aims of transhumanism, namely, to reduce suffering and prevent premature death. Although this does not go to the same extent as in the transhumanist dream, it is in the same direction. Nevertheless, despite the initial impression of the transhumanist vision being so reasonable and compelling, there remains a feeling that society should carefully consider whether to support the transhumanist movement. It is however challenging at first to articulate the apprehension towards societal support of transhumanism. Contributing to this difficulty is the apparent prudence that accompanies transhumanism, unintentionally providing a cover to conceal the elements of transhumanism that might be objectionable. However, to appear as a solid or even desirable option is insufficient. Also, just to discard a possible objection just for being grounded in intuition is unreasonable. Intuitions have their place and even play an important role when it comes to moral judgments. This is seen in the

social intuitionist model by Jonathan Haidt (2001) of which *"[t]he central claim of the social intuitionist model is that moral judgment is caused by quick moral intuitions and is followed (when needed) by slow, ex post facto moral reasoning"* (p. 817). The quick moral judgement here is that the question of whether society should support the transhumanist vision is not so easily answered. According to the social intuitionist model, this judgment has moral value. However, it also states that *when needed* this should be followed by deliberate reasoning. Arguably, in this case deliberate reasoning is called for. Supporting the transhumanist vision in such way that its aspirations are realized would mean for society to take a stance. It would be an acknowledgment and endorsement of the transhumanist values and the path it envisions for man and society. More importantly, aiding the realization of transhumanism would mean influencing the course that society will take. Even though transhumanism advocates the freedom to choose whether to be enhanced, the realization of the transhumanist vision will still impact those that choose not to. Societal support that impacts society should be done with all of society's members in mind. Therefore, before asking the question what this support exactly should look like to make the transhumanist dream come true, the question first needs to be addressed whether the transhumanist vision is something that society should provide support. This analysis on a more fundamental level of the transhumanist vision will also guide further ethical analysis on individual practical applications, technologies, and endeavours that derive from the overarching transhumanist vision. Thus, this thesis will examine the transhumanist vision beyond its initial impression to further deduce whether it is a movement that should take precedence and that society should indeed actively support, as the transhumanist movement believes society should.

To do so, this thesis will join the debate that criticizes the transhumanist vision for having a reductionist materialist concept of human nature. Other authors in this debate are for instance Souza et. al. (2020, p. 29), Del Aguila and Solana (2015, p. 308), Tirosh-Samuelson (2010, p. 38), and Frye (2017). This thesis will add to this debate by introducing the critique provided by Bernardo Kastrup (2019) on the reductionist materialist concept of human nature and by examining what this means for whether society should support the transhumanist vision.

The question that this thesis will aim to answer is: *To what extent should society support a transhumanist vision that is based on a reductionist materialist concept of human nature?*

This thesis will take a critical look at the reductionist materialistic concept of human nature. It will argue that this concept of human nature is not fundamentally true. That the transhumanist vision it is rather *a* worldview than *the* fundamental worldview. It will be argued that this means that society should not provide proactive support. However, other types of societal support should be provided in appropriate instances.

This thesis is structured as follows. In the first chapter, the transhumanist vision will be explicated. This will include a discussion of the definition and its underlying premises. After which is addressed the transhumanist aspirations and the main areas in which transhumanism sees the possibility and need for the progression of mankind. Lastly, an overview of technologies associated with transhumanism will be provided. In the second chapter, the worldview that underlies the transhumanist concept of human nature will be addressed. To do so, a historical context will be provided to make clear how throughout the ages the current transhumanist vision has taken form. The discussion of history will not be extensive and complete but focused on those aspects relevant to and sufficient for the further discussion of transhumanism in this thesis. The third chapter will further assess the two premises that underlie the definition of transhumanism, as discussed in the first chapter. This assessment will clarify how these premises are rooted in the reductionist materialist concept of human nature and that this concept is a fundamental part of them.

In chapter four the reductionist materialist view itself will be addressed. Two main problems will be discussed that the materialist view runs into. This is the problem of non-contextuality and the problem of not being able to account for qualia. It will be argued that these problems undermine the plausibility of the reductionist materialist concept of human nature. The fifth chapter will address the implications that the problems of the reductionist materialist view have for the transhumanist vision. Discussed will be how this affects the transhumanist vision and the technologies associated with transhumanism. It will be argued that the current reductionist materialistic concept of human nature limits the transhumanist vision in its ability to fulfil its aspirations. The case will be made that for some technologies the reductionist materialist view could still suffice to a certain extent despite its problems, but that these pose a fundamental problem for other technologies.

The sixth chapter will address the societal support for the transhumanist vision. First will be discussed what type of support should be provided from the transhumanist point of view. It will be argued that this type of societal support is not warranted. After this, two other types of societal support will be introduced, moral and limited support, and discussed. Finally, guidance will be provided for further applied ethical evaluation of support for transhumanist technology and endeavours. Potential counterarguments will be addressed throughout chapter four, five, and six. Chapter seven will contain the conclusion and final remarks.

This thesis will not be exhaustive in portraying and addressing all different variances and sub-movements of transhumanism. The scope is limited to addressing the most prominent movement in transhumanism as introduced in chapter one. The terms transhumanism and transhumanist movement, and the terms transhumanist ideal, dream, and vision are used interchangeably. Also, the scope will be limited to addressing the technological and biomedical enhancement of humans. The field of transhumanism does include other themes and possibilities; however, these will only be mentioned but not further discussed.

There is currently a plethora of technologies that enable man to function better. Think hereby of glasses, defibrillators, surgery, cochlear implants, and so on. However, so far, they are primarily intended for therapeutic purposes where transhumanism technologies aim to enhance man. Where one ends and the other begins is a topic of debate which will not be further elaborated on here. This falls outside the scope of this thesis.

The context that this thesis considers limits itself to that of the Western world. However, this does not necessarily entail that the discussion and findings of this thesis are only relevant for this limited geographical area.

For sake of brevity, the term materialist view will be used to refer to the reductionist materialist concept of human nature. The term man, mankind, humankind, and humanity will be used interchangeably throughout this thesis. They are meant to be read in the most inclusive way. The terms consciousness and mind are used in a synonymous way. The terms can be further specified to have specific and exclusive meaning, however, that level of detail is not necessary for the argumentation in this thesis.

Chapter 1 – The Transhumanist Vision

In this chapter, an overview of transhumanism will be set out. A definition will be given, and it will be addressed what this definition entails, how it is build up and what this means. Then, it will be addressed what transhumanism aspires to accomplish, in what areas it seeks progression and furtherment of mankind. Lastly, the various forms of technologies will be addressed that the transhumanist movement is developing to support in its goal.

1.1 Transhumanism Defined

As mentioned before, although the term transhumanism first came into existence in 1957 it took years for it to gain momentous traction in science and mainstream culture. Transhumanism is not defined to a single and set definition, even the arguably leading transhumanist philosopher of nowadays Nick Bostrom only speaks of a "*loosely defined movement*" (2003a, p. 493). However, amongst the differences shared, fundamental principles can be discerned. The Swedish philosopher Nick Bostrom will be taken as the main representative of these fundamental principles in this thesis. Bostrom at the present time is a professor at the University of Oxford and the director of the Future of Humanity Institute. Additionally, he founded the World Transhumanist Organisation (WTA), an international non-governmental organization with the aim of gaining recognition for transhumanism as a legitimate subject of scientific inquiry and public policy. The WTA has by now transformed into Humanity+ (also Humanity Plus) which is a non-profit international educational organization with the following mission: "*Humanity+ advocates for the ethical use of technology and evidence-based science to expand human capabilities. We focus on science, technology, culture, and social issues"* (Humanity Plus, 2023). Given the position and role that Bostrom holds within the transhumanism movement, it is justified to consider him to be representative of the transhumanist principles.

When Huxley (1957) coined the term transhumanism, he believed it possible that social institutions could outdo human evolution in refining and improving mankind. He envisioned the way forward would be mainly through social and cultural change. Since then, the notion of mankind transcending itself has merged more and more with scientific advances.

This has led to the modern sense of transhumanism which was introduced in 1990 by Max More in his essay ***Transhumanism: Toward a Futurist Philosophy***. In this modern sense, transhumanism has become a movement of philosophical and scientific beliefs that advocates that current and emerging technologies are to be used to augment human capabilities and improve the human condition. The responsible application of these technologies should lead to a future in which mankind overcomes its current limitation. Although, as mentioned above, Bostrom speaks of transhumanism as a movement that is only loosely defined, he does give a formal definition:

> *(1) The intellectual and cultural movement that affirms the **possibility** and **desirability** of **fundamentally improving the human condition** through applied reason, especially by developing and making widely available technologies to eliminate aging and to greatly enhance human intellectual, physical, and psychological capacities.*
>
> *(2) The study of the ramifications, promises, and potential dangers of technologies that will enable us to overcome fundamental human limitations, and the related study of the ethical matters involved in developing and using such technologies. (Bostrom, 2003b, p. 4, emphasis added)*

An important element of this definition is that it shows that transhumanists hold as true that it is possible and (ethically) desirable to improve the human condition. Implicit in this is that transhumanists believe that there is a pressing urgency, or even a moral duty, to investigate possibilities and develop technologies to make this possible. These technologies should be made available as soon as possible because any delay will prolong the unnecessary suffering and death of people that could have been prevented were the technologies earlier available.

Further, this definition has two underlying premises. The first and main underlying premise of the transhumanism definition is that mankind as it is now does not represent its final form and endpoint of evolution but rather that it is a work in progress that is still in a relatively early phase, *"[...] a half-baked beginning that we can learn to remould in desirable ways"* (Bostrom, 2005b, p. 4). In addition, the notion that mankind is not in its final stage

implies that mankind is not yet good enough. Not only can man be altered, but man can be evolved to what man should be, man's final form. This shows by the statements in the definition of *'improving the human condition'* and *'enhance human [...] capacities'*. These are normative statements revealing that the assumption is that the alterations proposed by transhumanism will make them better or even make them right.

The second premise is that mankind should mainly rely on technology to achieve the improvement of the human condition. This becomes clear in the part of the definition that states *'especially by developing and making widely available technologies'*. Technology should be the primary focus of transhumanist endeavours because:

> "There are limits to how much can be achieved by low-tech means such as education, philosophical contemplation, moral self-scrutiny, and other such proposed by classical philosophers with perfectionist leanings, including Plato, Aristotle, and Nietzsche, or by means of creating a fairer and better society, as envisioned by social reformists such as Marx or Martin Luther King." *(Bostrom, 2005b, p. 9)*

It is not that they see no worth or value in the possibilities of today, however, transhumanists believe that it should go further. The means to achieve this are rational and found in applied science and technology, specifically seen as having great merit are gene technology, nanotechnology, information technology, and artificial intelligence (Bostrom, 2003b, pp. 7-20).

The second part of the definition is concerned with the possible dangers. It nuances the first part by acknowledging that there are not only potential (morally) good consequences to come out of transhuman endeavours but that they also carry an inherent risk.

Another element that does not directly show in the definition abovementioned but that is an inherent part of transhumanism, is that of morphological freedom. Morphological freedom entails that there should be the freedom of choice whether to modify or maintain one's own body on one's own terms based on informed consent to use or refuse the available therapeutic or enhancing medical technology. According to transhumanism, there is no duty for individuals to enhance themselves but there should also be no restriction. Individuals

should have the right and freedom to choose independently whether to enhance themselves, and, if so, in what way (Bostrom, 2005b, p. 11).

1.2 Transhumanist Aspirations

Four main sectors of the human condition can be identified that are considered limited and therefore open to improvement. First, the extension for as long as possible, and hopefully even indefinitely, of the human health span. This is the time in which a human being is considered physically and mentally fit, unaffected by diseases and aging. Second, the maximum increase of the cognitive ability. Within this are both specific intellectual capabilities such as mathematical understanding as well as general capabilities such as concentration, reasoning, and memory. Third, the increase of man's physical abilities. This is to be taken in a broad sense, it regards elements such as strengthening the immune system, enhancing endurance, or even the extension of capabilities by adding new senses. Fourth, the enhancement of the emotional capacities. This refers to extending man's positive emotions necessary for the ability for enjoying life such as having fun, feeling grateful, being excited, while avoiding negative emotions such as hate, anger, and aggression (Münch, 2014, pp. 205-206). This fourth sector also includes moral enhancement since the ability to make moral decisions is influenced by the positive and negative emotions (Persson & Savulescu, 2019).

The hope of transhumanists is that the responsible use of science, technology, and other rational means, will make it possible for man to self-direct human evolution and in due course develop into posthumans. Posthumans are defined as beings that have capacities that are immensely superior to the capacities that mankind currently possesses. In the interim of that process there will be a transhuman which will be a moderately enhanced human being. Its capacity will be between those of today's non-enhanced humans and those of fully enhanced posthumans. The distinction between the term transhumanism, transhumanist, and transhuman should be carefully considered. Transhumanism is the concept, a transhumanist is someone who believes in transhumanism, and a transhuman is the transitional being between current man and posthuman. (Bostrom, Transhumanist Values, 2005b, p. 5).

1.3 Transhumanist Technologies

The technologies to start our transformation towards being posthumans are not yet available. However, serious efforts in that direction are being made in both the scientific and technological sectors on both a conceptual and practical level. Some of the ideas that are being worked on seem farfetched, but transhumanists believe that the creation of these technologies will eventually be possible. They believe that the technology that transhumanism considers physically possible and to have obvious merits for humanity will be made possible by our ingenuity, of course given that the proper support is provided. Obviously, as we enhance ourselves further, so will our capacities to create even better and more refined technology for the purpose of enhancement therefore getting us closer and closer to the desired goal. Some of the academic and technological endeavours that are being undertaken towards this goal are mentioned below.

Cryonics (from the Greek κρύος kryos meaning 'cold') is the endeavour to postpone death in which human remains are frozen at low temperature, usually at -196 °C, and stored. A sort of interim immortality. The speculative hope is that in the future technology will be developed that makes it possible to resurrect these stored bodies. The further hope is that by that time a way has been found to extend life drastically and preferably even indefinitely. As Bostrom (2005b) puts it:

"While cryonics might be a long shot, it definitely carries better odds than cremation or burial" (2005b, p. 13)

Gene therapy could be used to alter and enhance man on a genetic level. Recent advances in genetic modification such as CRISPR make it possible to change and edit genetic material in a much more fine-tuned manner compared to older forms of biotechnology. This could be deployed for a variety of goals. For instance, to make man immune to certain diseases, for anti-aging purposes or to alter metabolic rate. Another application, which is so far quite controversial, is to design humans before birth, for example, to be of a certain height or have a certain colour of hair or eyes.

Molecular nanotechnology (MNT) is focused on the atomic properties of materials. Atoms and molecules are manipulated on a near-atomic scale to produce structures and

devices. Such as nanorobots which could traverse through the human body. These could be used to detect disease or to stop, or even reverse, aging by repairing cells.

Cybernetics is an academic and technological field that unifies humans and systems. A well-known term in this regard is cyborg, which literally means cybernetic organism. The merger of man with technology should enhance our capabilities or even provide us with new capabilities. Think for instance of robotic limbs that have more strength, electronic eyes that can see further, or a USB drive instead of the tip of a finger (Sorrel, 2009).

Brain-Computer Interfaces (BCI) are concerned with our brains interacting with computers. The aspiration is that the computer becomes a neural extension of the brain. Thereby creating a direct communication pathway linking the electrical activity of the brain to an external device.

Another technology aimed at immortality suggests that we should shed our bodies to become immortal. Instead of seeking physical immortality we should upload our minds to computers systems and thereby escape and transcend our biological limitations to be able to live forever. In this copying process, the biological brain may or may not survive. The uploaded mind will thereafter be living forever within a simulated virtual world. Alternatively, it could reside within a computer that is connected, either directly or remotely, to a robot or cybernetic body. This robot could resemble human form, but not necessarily so.

Artificial Intelligence (AI) is already making its way more and more into everyday life. This is seen as a technology that can enhance the lives of humans in both an external and internal manner. For instance, by designing and creating an environment to live in, or by augmenting cognitive capabilities. AI is believed to reach and surpass human-level intelligence to create a superintelligence. Although the road to human-level intelligence is rocky and might take a while, the hypothesis is that once that state is reached it is likely to further evolve rapidly into superintelligence. This point in future where mankind is no longer the superior intellectual is referred to as the singularity. It would signify the start of a world in which machines can design, create, and improve themselves faster than humanly possible. This would then be out of man's control, and it is not foreseeable where this would lead to.

Although these are portrayed as different fields and distinct technologies with their own aims and benefits, they cannot be completely separated from one another. Some rely on other technologies to some extent, for instance, a BCI is needed to operate the cybernetic

robotic limb. Also, when advances are made in one of these fields or technologies then this will most likely often result in a rise of new possibilities in other areas. The technologies most often interlink with each other, and this convergence will accelerate the rate of progress in human enhancement.

Transhumanism also includes other themes that could significantly change the human condition. These include the possibility of creating superintelligent machines, space colonization, along with other potential developments. The field of transhumanism is also not strictly limited to technological and biomedical means but also includes economic, social, and institutional designs, psychological skills and techniques, and cultural development. However, the focus of transhumanism is on the technological and biomedical means. Therefore, the other elements will not be further elaborated on or discussed in the remainder of this thesis.

Chapter 2 – The Underlying Worldview of Transhumanism

In this chapter, the current underlying worldview of the transhumanist vision will be addressed. To do so, a historical context will be provided that will show how throughout the ages the current transhumanist vision has taken form. The discussion of history will not be extensive and complete but focused on those aspects relevant to and sufficient for the further discussion of transhumanism in this thesis.

2.1 Historical Context

Although the term transhumanism is relatively new, a mere 70 years, the concept did not emerge abruptly. The drive and aspiration to improve man has a history that dates back to classical antiquity. The ancient Greeks were already invested in improving man. The great philosophers still well-known today devoted their life to transcend their cognitive skills and to become the most virtuous person they could be. More so, the strive for progress is seen in the ancient Greek mythology. This can, for instance, be seen in the myth of Prometheus. After creating mankind, Prometheus sees that Epimetheus dispenses all the gifts of nature among the animals. This leaves mankind naked and unprotected in the dangerous and hostile world they live in. When Prometheus learns that Zeus is planning to destroy mankind, he then decides, against Zeus's explicit orders, to help mankind and bring to them fire which he stole from the workshop of Hephaestus. Fire gave mankind the power to create, for instance through baking and the forging of metal, progress, and flourish. It also symbolically promotes mankind closer to the level of the gods who had so far been the only one with the gift and power of fire. Prometheus's act greatly benefited mankind, he himself, however, suffered the wrath of Zeus for defying his order by being chained to a rock and having his liver being eaten out daily by vultures. This is a myth that is also referred to by transhumanist advocates (Franssen, 2019, p. 1). After the Greeks, the pursuit continued exemplified by the countless quests to find the fountain of youth, the holy grail or concoct the elixir of life. Many an adventurer or alchemist have dedicated their life to this. The Wright brothers devoted their time to provide the means for man not to be limited and bound to the earth but to expand our world to include the sky. Submarines overcame our limited ability to hold our breath. This

tendency for improvement in transhumanism has been translated into that it is part of mankind to always seek to further and develop themselves, that it is in our nature.

> *"The human desire to acquire new capacities is as ancient as our species itself. We have always sought to expand the boundaries of our existence, be it socially, geographically, or mentally. There is a tendency in at least some individuals always to search for a way around every obstacle and limitation to human life and happiness." (Bostrom, 2005a, p. 1)*

The way how to approach this quest for furthering ourselves has been shaped by the zeitgeist. How man understood and viewed the world (Ihde, 2010, p. 126). As mentioned, in ancient Greece the enhanced man was the one who overcame urges and shortcomings in an intellectual way. The Stoics, for example, devoted their lives to this. In times after that, the solution was thought to be found in nature by the quests for sacred places and the mixture of specific natural substances and minerals. This has transformed into the current view of enhancing man by man-made technologies. This view did not come out of nowhere but is the result of how history has developed throughout centuries. As mentioned, the roots of transhumanism can be traced back to the ancient Greek philosophy. Another period of history that has been of great influence is the European Renaissance. In this time, the focus of thinkers and writers started to shift away from a theological or parochial focus and towards a focus that was directed on human affairs, human thought, and the human condition (Farman, 2022, p. 2). Reason was regarded as what set man apart from and above other creatures and it was this reason that would allow man to gain access to the greatest knowledge. Man was encouraged to rely not on religious authorities but rather on their own observations and judgment (Bostrom, 2005a, p. 2). Man became more the centre of attentions in endeavours in fields such as politics, art, and science. In the Renaissance, the ideal of man was created to be a "*well-rounded personality, one that is highly developed scientifically, morally, culturally, and spiritually"* (Bostrom, 2003b, p. 39). In this time, man became more to be seen as object of focus and the one in control. An important part in this is the *Oration on the Dignity of Man* (1486) in which Giovanni Pico della Mirandola stated that it is the task of man to shape himself as man does not yet have a ready form. Another aspect of importance in the light of

transhumanism is that next to the focus shifting to man and reason, modern science began to take shape. Over time this evolved further into the Enlightenment, also known as the Age of Reason. In this period, there came even more emphasis on reason and science over superstition and faith. From the perspective of transhumanism what is of importance of this time is the notion of progress that was at its centre, and the focus on man to have the power to determine its own future (Farman, 2022, p. 9). Following this period was the Industrial Revolution with its scientific and technological development. A main characteristic of this era was the transition to more efficient manufacturing processes. In this quest for more efficiency, two elements are of importance here. One is that technology was more and more looked upon to provide the answer. The second is that goods were being seen less as a totality and more as a construction of its loose parts. Exemplary of this were the Ford factories. This continued into the Second Industrial Revolution, also known as the Technological Revolution, with further industrialization, standardisation, and rapid scientific discovery. Next, the Third Industrial Revolution, also known as the Digital Revolution, saw a shift from the analogue electronical and mechanical technologies of the Industrial Revolution towards digital electronics. The current period is one of great technological advances of which transhumanism is characteristic. Proponents themselves acknowledge the influence of this history in the development of transhumanism into its present form (Bostrom, 2005a, p. 2; 2003b, p. 39).

This course of history has shaped the world of today. This is not only the constructions that have been created around man, but it has also created the way the world is perceived. Every generation sees the world as they believe it to be true. This view changes throughout time and is determined in important respect by the current cultural context. This cultural context is made up of innumerable assumptions and conceptual categories that have taken shape over time. Even science, by many believed to be an objective field, is subject to this inherent subjectivity of perception (Kastrup, 2018, p. 42). If enough anomalies have been encountered that contradict the validity of the respective worldview, then an adjustment of the worldview follows.

2.2 Transhumanist Worldview

The path of history has led to a worldview that is reductionistic and has a materialistic world with a mechanistic technoscientific discourse. The world is seen as a world of matter, reducible to single particles that can be examined, explained and that can objectively explain all phenomena in the world (Kastrup, 2018, p. 49). It is a worldview that is accompanied by an emphasis on rationality, critical thinking, and science with man at its centre as an individual which is set apart from the rest of the world by its skills of reason. This reductionist materialist worldview will be further referred to as the materialist(ic) worldview or materialism for short. Materialism has several definitions with important distinctions. The term materialism is mostly known and used currently in reference to the theory that the greatest good and highest value in life is established through worldly possessions or in reference to a concern or preoccupation with the possession of material wealth rather than on spiritual or intellectual pursuits. However, it is important to note that this is not what is referred to when the term materialism is used in this thesis. The definition of materialism that is referred to when the term materialism is used in this thesis is that materialism is the theory that physical matter, which holds fundamental properties, is the only or fundamental reality and that everything, all being, processes, and phenomena, including thought, feeling, mind, and will, can be explained in terms of manifestations or results of matter and physical phenomena. In short, everything in the world is reduced to physical matter. A term that is also used to describe the same or similar view is physicalism, the two terms are also often used interchangeably. However, here only the term materialism will be used.

The result of this way of viewing the world is currently more than evident. Man is controlling and shaping the natural world ever more to its liking and desire. The natural world has lost its inherent value, it is not often seen for what it is but instead for what it is to mankind or for what it could become for mankind. Where technological progress so far has been aimed at the attempt to tame and control nature, transhumanism is its logical continuation. Not only the natural world around man can and should be altered to better serve its needs but the nature of man itself should be adapted for this purpose (Thomas, 2017). Shape the world into a paradise and improve man to be suitable for living in it. Man ceases to be part of nature but transcends it to see itself and identify as a worker, a creator. This leads to a sort of instrumental thinking, a way of thinking in which the intrinsic value of things is lost, and they are no longer

observed for what they are, but merely as what end it can serve and what it can become (Arendt & Canovan, 1998, p. 156).

> *And since it is in the nature of man the user and instrumentalizer to look upon everything as means to an end – upon every tree as potential wood – this must eventually mean that man becomes the measure not only of things whose existence depends upon him but of literally everything there is. (Arendt & Canovan, 1998, p. 158)*

This worldview represents itself in the perception of the human body that transhumanists hold. In this perception the presence of the prevalent view of the fundamental dichotomy between mind and matter, that are seen as jointly exhaustive and mutually exclusive concepts, is obvious (Kastrup, 2019, p. 22). This perception underestimates the complexity and intricacies of the human body. In contrast, the human body is simplified by not being seen as a fully interconnected whole, including the mind. It is seen as a body that consists of separate mechanical parts. Merely an object to be manipulated and adjusted by altering its separate parts. Man is no longer it's body, but the body is a commodity of man. As the Industrial Revolutions progressed and still is progressing, so is man's dependence on new technologies. The body became less the centre and main medium of human activities as it used to be. This role in the performance of daily activities is in large part taken over by technological features, leaving the body to be a secondary accessory, rendering the human body to symbolic trivialization (Souza, Souza, Silva, & Gonzalez, 2020, pp. 21-22). Man used to rely on its body as its main aid in moving throughout the world, in both literal and figurative sense, but that is further diminishing by the day. From walking, to cycling, to riding an e-bike, the role of the body becoming smaller with each step.

Chapter 3 – The Foundation of Premises One and Two Examined

So far, it has been discussed, first, what transhumanism entails as well as the historical context that has led to the worldview of transhumanism. In this chapter, a step further will be taken and substantiated that transhumanism has a reductionist materialist concept of human nature. To do so, it will be established that the two premises that underlie the definition of transhumanism are rooted in the reductionist materialist concept of human nature and that this concept is a fundamental part of them.

3.1 Premise One – Building a Better Human

The first premise that underlies transhumanism is that mankind is not yet in its definitive stage, but rather that it is still a work in progress on its way to reach its final form. The first element to discuss here is that this statement indicates that man is not seen as something that just is but as something that is to be judged and valued against the standard of man. The perceived control of man over the world has extended to man. Just as how the world around man is looked at to see what it should be, so is man viewed. Mankind creates the standard and decides that man does not live up to it. Although this is coherent with how the worldview evolved throughout history, and specifically the Industrial Revolution ages, it could be argued that this is not necessarily directly and exclusively representative of a materialistic view. For example, it could be that man is seen to come up short in non-material ways. Therefore, to establish whether this premise is based on a materialistic worldview, the foundation of this premise needs to be addressed. The foundation of this premise can be found in the answer to the question in what way transhumanism believes man needs to progress and improve. It is in this answer that it becomes clear that premise one is based on the fundamental reduction of man being nothing more than the collection of matter, that there is nothing more of importance or meaning to man than its particles. This means that the foundation of premise one is that of a materialistic worldview that holds a reductionist materialist concept of man. Man is not a single unit that needs to be uplifted and improved as a whole. Instead, man is a construction of a myriad of units that can all independently be assessed, adjusted, and improved. For example, according to the transhumanist philosophy, man is a set of separate

units that can be altered independently as opposed to a network of integrated systems that together form a whole, complete unit. The body and man being no more than a complicated Lego construction. A Lego construction that can be modified at will and at any time. Just as the characteristics of a Lego man can be adjusted or a Lego house can get another floor attached to it or be reshaped, so can the human body. Biological arms can be replaced by robotic arms, anything that can be assessed as to be holding man back of reaching its full and final form can be redesigned and adjusted.

Just as the body is seen as a collection of different parts, so do transhumanists view the mind. An area of interest to the transhumanism movement is the strive for the enhancement of mood, emotion, and morality. To live a better life by enjoying more positive emotions and by avoiding negative emotions when they are not needed. Mans moral capacity will also be enhanced by altering the mind in such way that the emotions that support man in making morally right choices are boosted and those that inhibit man in his moral decision-making skills are constraint. This should allow man to act on a higher moral standard by, for instance, enhancing altruism and diminishing in-group tendencies. In line with the first premise that is discussed here, is the conception that the morality of man is falling short. It is argued that as society progresses further, the gap between the morality that man is capable of and the morality that is needed will only become greater to reach a potential devastating extent (Persson & Savulescu, 2019). This view depicts the mind, just as the body, as a variety of loose parts that can be altered and adjusted to create a desired and predictable outcome. All that is needed is to know which traits are desired to be more profoundly present and which to be diminished, then they can be altered independently without affecting other elements. Unlike, for instance, Fukuyama's view that emphasises the interconnectedness:

> *Our good characteristics are intimately connected to our bad ones: If we weren't violent and aggressive, we wouldn't be able to defend our- selves; if we didn't have feelings of exclusivity, we wouldn't be loyal to those close to us; if we never felt jealousy, we would also never feel love. (Fukuyama, 2004, p. 43)*

A step even further in this is the endeavour of uploading the mind. The concept of mind uploading shows the view that man is a construction of independent parts of which everything can be broken down into single parts to be reconstructed at will. The mind being nothing more than matter that can be deconstructed and recreated. It suggests that it is not only possible to reduce the brain to its biochemical substrates, which is what, for example, the abovementioned enhancement of mood and emotion are based on but that the mind too can fundamentally to physical substrates and even further. To be able to upload a mind it must be reducible to mere information that fully represents the individual (Farman, 2022) so that all that is needed is a material foundation that can operate this information. For example, the mind can be taken from the 'operating system' that is the body to be uploaded in one that contains a virtual world, or a robotic body that can move around freely in the real world. This shows the view that mind, experience, and consciousness are not things in themselves but that mental states and consciousness are the mere result of matter and material interactions. This is exactly what the definition of materialism describes, which, as previously mentioned, holds that everything, including thought, feeling, mind, and will, can be explained in terms of manifestations or results of matter and physical phenomena.

Additionally, the concept of mind uploading is also a declaration that the body is deemed to be the main source of what holds man back. The body is inherently limited, in terms of physical capabilities, susceptibility to illness, and mortality. The mind itself is free of all these limitations. It only needs to be liberated from the shackles of the limited body, then recreating the mind, by uploading it to an external source unhampered by bodily limitations, would provide immortality.

To desire to live in a fully realistic virtual world, either by being uploaded to it, as mentioned above, or by a Virtual Reality (VR) system while remaining in the biological body, also resembles the current materialistic worldview regarding the outside world. Not only does it presuppose that the mind can be separated from the body and simplified to data, but it also presupposes that the outside world does not have anything to mankind that cannot be reduced to data and that can be reconstructed to provide the same, or even better, experience. This seems to presuppose that there is no connection between man and its surroundings, not more than the coincidence of both existing with the shared characteristic of being made out of matter that can be fully deconstructed and reconstructed without losing

any of its elements or value, even that it could very well become more and better. This, as well as the rest of transhumanism, is exemplary of the earth alienation that Hannah Arendt in *The Human Condition,* first published in 1958, described as the escape of the confines of the earth by means of modern science and technology. The more man got to know about the earth and the more technology made it accessible the more of a distance has grown between man and earth.

> *The fact that the decisive shrinkage of the earth was the consequence of the invention of the airplane, that is, of leaving the surface of the earth altogether, is like a symbol for the general phenomenon that any decrease of terrestrial distance can be won only at the price of putting a decisive distance between man and earth, of* ***alienating man from his immediate earthly surroundings****. (Arendt & Canovan, 1998, p. 251, emphasis added)*

The virtual world lets man escape from the confines of the surrounding physical world and instead transfers man to a created, technological world that can be limitless and in which man can be limitless. Giving expression to the notion that man stands apart, even above, the animal and natural world.

> *For some time now, a great many scientific endeavours have been directed toward making life also "artificial," toward cutting the last tie through which even man belongs among the children of nature. (Arendt & Canovan, 1998, p. 2)*

Cryonics, the aspiration of storing persons in a low-temperature storage that have been declared legally dead with the hope of reviving them in the future when technological progress has made this possible, on first impression seems to evade the materialist view. It does not deconstruct the body but keeps it intact as it stores the body as one unit. However, although the physical body is perhaps not broken down to elements the consciousness is. Since cryonics holds that in time it will be possible to make a person come back to life as a full

human being after being frozen it shows the assumption that the consciousness of a person is no more than the result of the material interactions of material properties, just as it is the case in the uploading of the mind mentioned above. If the person is revived the brain starts working again with neurons and synapses that start firing and through this activity of material interactions, the inner working of the brain, consciousness is re-emerged. This shows that cryonics as well has a strong footing in the materialist worldview.

Thus, when the first premise is addressed on a deeper level by answering the question in what way man needs to be improved, the underlying conception of materialism as the foundation of the first premise becomes obvious. Everything can be deconstructed to its smallest parts and the sum is what constitutes the whole. Man, its mind, its experiences, and its consciousness can be deconstructed and recreated. The body can be deconstructed to be adapted and transformed into a more desirable, enhanced, progressed version of its physical form. The mind can even be deconstructed to be completely recreated outside the physical body. Man's mind is no more than the result of intricate interactions of material properties.

3.2 Premise Two – Technology is the Answer

The second premise underlying transhumanism is that man should rely on technology for its improvement. It is believed that scientific and technological endeavours are the way forward that can further man along in its path of evolution. That transhumanism has a strong focus on technology is also clear in the first premise, as discussed above. Another intimation of this is that of the leading corporations in the technology sector, such as Google, PayPal, and Space X, many of their main figures are associated with transhumanism (Farman, 2022, p. 1). Techno genesis, which is the co-evolution of mankind and technology, has been happening since man started using tools and technologies. Mankind and technology evolved alongside each other and are shaped by each other. Technology has an indispensable role in transhumanism. Not only by improving man but also by merging man and technology to form a single organism. Take for example the endeavour of creating the cyborg body that is both organic and technological or the use of nanobots within a body. Although the body and the nanobots could be seen as separate, in the vision of transhumanism they co-exist to such extent that they can be viewed as a single organism. A Brain Computer Interface (BCI) aims, as the name suggests, that a brain and computer are linked. Not only is the co-evolution and improvement of

mankind by means of technology seen as desired, but it is also by some even deemed a sheer necessity. For instance, Mark Walker (2010) states in his article, with the illustrative title ***Ship of Fools: Why Transhumanism Is the Best Bet to Prevent the Extinction of Civilization***, that it is the best, and perhaps the only way to avoid extinction. Savulescu and Persson (2019) state that biomedical enhancement of morality is a moral duty because without this technological intervention the moral capacity of man is not and will not be able to deal with our current and future society. It is already discussed in relation to premise one that the technologies that are associated with transhumanism are founded on a materialist concept of human nature, that does not need further elaboration here. What is of importance to discuss regarding premise two is that, by stating that man should rely on technology for improvement, it makes explicit that transhumanism is limited to this material foundation. Taken together, the premises one and two make clear that transhumanism is based on a reductionist materialist concept of man.

Chapter 4 – The Matter with Materialism

The previous chapters discussed that the transhumanist movement is based on a reductionist materialist concept of human nature. The materialist view that is based on the theory that physical matter is the only or fundamental reality and that everything, all being, processes, and phenomena, including thought, feeling, mind, and will, can be explained in terms of manifestations or results of matter and physical phenomena. However, in this chapter it will be argued that the theory of materialism runs into problems with anomalies that it cannot account for which could have implications for practical applications, such as transhumanism and its related technologies, which are based on it. However, materialism itself will not be extensively and exhaustively evaluated here. It will be limited to what is needed and sufficient for the scope and aim of this thesis. First, an internal flaw will be addressed, the problem of non-contextuality. After this, the problem of accounting for phenomenal properties will be addressed. The combination of these two problems is crucial for the analysis provided in chapter six, this will not be further digressed on in this chapter. The discussion here will mainly be based on the writings of Bernardo Kastrup (2014, 2018, 2019). For a more detailed, in-depth, and extensive discussion of materialism can be turned to the works of Kastrup and other authors.

4.1 Non-Contextuality

The notion of non-contextuality entails that when a property of something is being observed, such as the weight, size, colour, etc, then the outcome of this observation should stand on its own and not be dependent on the way other, separate but simultaneous, observations are performed. Materialism depends on non-contextuality since it is based on the premise that everything is reducible to particles that represent the fundamental reality. If the properties are fundamental then these need to belong to the particle itself and be consistently the same, independent of whether they are observed by none, one, or many at whichever given time. However, according to the results of research experiments this does not seem to be the case. Quantum theory has shown that the outcome of an observation can be dependent on how

another observation, which is separate but simultaneously executed, is performed. For example:

> *[…], if two particles A and B are prepared in a special way,* ***the properties of particle A as seen by a first observer*** *— say, Alice —* ***are predicted to correlate with the way another observer*** *— say, Bob —* ***simultaneously looks at particle B****. This is so even when A and B — and, therefore, Alice and Bob — are separated by arbitrarily long distances. (Kastrup, 2018, p. 44, emphasis added)*

By this, quantum theory poses a contradiction to non-contextuality, the properties of particles are not independent and fundamental but that there are other elements of influence on this. This means that physical matter is not the only or fundamental reality that explains everything else, as the theory of materialism claims. Therefore, the essential element of materialism fails, and this leaves materialism to be an untenable concept.

Materialism could of course be salvaged by the rejection of quantum theory, and therefore the elimination of the contradiction to non-contextuality. However, *"the predictions of quantum theory in this regard have been repeatedly confirmed, with ever-increasing rigor"* (Kastrup, 2018, p. 45). Rejecting quantum theory, with the number of experiments that have been conducted and proved the predictions set by quantum theory, seems an irrational long shot to ward off the implications it has for materialism. Hence, the acceptance of the refute of non-contextuality as posed by quantum theory seems to be the more valid option. In this acceptance, the first precept of materialism has been dismissed. That is, the precept that particles have fundamental properties, which are not influenced and do not change by other factors such as the mere merit of observation. The second precept of materialism is that since physical matter is the fundamental reality, the world, and by that man as well, is fundamentally physical. This can also be seen in the definition of materialism that holds that everything can be explained in terms of manifestations or results of matter and physical phenomena. However, the second precept also runs into problems if the first precept, on which the second precept builds on, is no longer valid.

There could be found a way to accept the dismissal of non-contextuality but work around its implications to make the first and second precept still valid and by that materialism still a tenable option. For this to work, it would be needed for the physical world to physically change, instantaneously, whenever it is observed. However, this notion does not have much plausibility to it. Next to that, it would also entail that the world that is independent of observations cannot be seen since it would need to change as soon as it is looked at in a way that is dependent on the observation. This does seem more like mind gymnastics than a straightforward defence and argument for materialism. As Bernardo Kastrup puts it:

> *Clearly, the only motivation to entertain this notion is to try to salvage some rather artificial and counterintuitive form of materialism. (2018, p. 46)*

Thus, from this follows that if there are no fundamental properties of matter, then the world and by that man is not fundamentally physical. Therefore, the theory of materialism cannot be right. This refute based on grounds of physics does not only have implications for the field of physics. If the theory of materialism is refuted, then this also has implications for worldviews, theories, concepts, and applications that are based on the theory of materialism, such as the notion and technologies of transhumanism.

4.2 Qualia

One more fundamental problem of the materialistic worldview is the inability to account for phenomenal properties of experience (Kastrup, 2019, p. 36). Phenomenal properties, also known as qualia, are the unique subjective or qualitative properties that accompany the senses and experiences. This type of experiences, those that have qualia, are referred to as being phenomenally conscious (Kind, 2014). A commonly used example of a qualia is the “redness” of red. Although the colour red itself can be described in scientific terms, the experience of the redness cannot. Take for instance the difference between the experience of seeing a red rose to that of seeing a white rose. Or the difference between a musical note played by a violin and the same note played by a guitar. Although they have similarities, they also have something that gives them their characteristic feel and that differentiates them from

one another. This is what the qualia is, it is the intrinsic quality of the experience. There are different kinds of experiences that have qualia, four different kinds of such experiences, not exhaustively, are for instance the following. Perceptual experiences, either by external stimuli or by internal stimuli such as hallucinations. Bodily sensations such as cold, itches, and hunger. Emotions, as for example, joy, sadness, excitement, love, or anger. Lastly, moods such as gloomy, amused, bored, or curious. These qualia are not identifiable with or reducible to matter or anything physical. Meaning that the materialist explanation of everything in the world in terms of physical matter does not manage to explain and include the qualia. This failing to accommodate for the qualia of experiences is also called 'the hard problem of consciousness' (Kastrup, 2019, p. 22). Not every aspect of consciousness falls under this category, there are also challenging aspects of consciousness that are considered 'easy problems of consciousness' (Kind, 2014). These problems regard aspects of consciousness such as cognition, learning, perception, and behaviour or the function, dynamics, and structure of consciousness. Although these problems are nowhere near to be solved, perhaps it will take several decades or even more to do so, they are believed to be able to be solved by the standard methods of cognitive science in which the explanation of a phenomenon is done in terms of computational or neural mechanisms. At some point it will be able to solve the problem of, for example, learning when a relevant neural mechanism is empirically identified that explains it. Note that the term 'easy' in 'easy problems of consciousness' does not at all refer to how close they are to being solved, it should solely be taken as a relative term as it only refers to that it is believed that the way in which to solve these problems is known, the abovementioned standard methods of cognitive science. What makes qualia 'the hard problem of consciousness' is that there is not even an understanding of how to understand or explain them. The empirical science that accompanies materialism does not have a way of coming to an understanding of qualia since it not based on physical properties. How someone sees, tastes, or feels something can be explained by identifying the neural mechanisms. However, what it is like to taste, feel, or see something and why it is that specific way cannot be reduced to and explained by material properties. Since materialism is dependent on physical matter being the starting point to account for everything else it cannot account for something that is not reducible to matter, such as qualia.

Another characteristic of the qualia that materialism is inherently unable to account for is that qualia are fundamentally subjective. Every person's experience is individual, unique, and bound to that specific occurrence, no experience can be reproduced to be exactly the same as a previous or future experience. Nor can anyone other than the one who has the experience understand what that experience is like. Even if two people at the exact same location see the exact same thing, they will not have the exact same experience. However, it is still a possibility that they indeed will have the exact same experience, but that can never be known since it cannot be objectively stated or understood what the experience of each is. From one person's perspective it is unimaginable what the experience of any other person is. Even when the parameters are as controlled as possible, for instance, when under controlled conditions the unmyelinated C-fiber and the myelinated Aσ-fiber, that are associated with the sensation of pain, are activated to the same degree in two different people their experience of this pain will likely be different and can never be compared. The theory of materialism is based on that there is a fundamental, objective property to everything and that these properties can be established. Qualia do not fit in this framework and can therefore not be accounted for by materialism. Although whether materialism can or cannot account for qualia has been and still is a topic of debate. So far, no convincing argumentation that materialism can incorporate qualia has been posited. Although this might still happen in the future, here it will be assumed to be justified to state that it cannot. This debate shall not further be addressed.

Chapter 5 – The Implications for Transhumanism

So far, it has been argued that the concept of transhumanism is rooted in and founded on a worldview that is materialistic in nature. It has also been shown that there are issues that materialism cannot account for, thus compromising the plausibility of materialism to grasp, explain, and address the world and, by that, mankind. This will also have implications for transhumanism since transhumanism and its related technologies are based on materialism. In this chapter, these implications will be addressed. First, the implications for the transhumanist vision will be discussed. After this, the implications for the technologies associated with transhumanism will be addressed. Note that the potential feasibility of the technologies addressed in this section is based on whether the materialist view creates a fundamental problem for the concept of the technology, it does not address the actual practical feasibility of the technologies.

5.1 The Transhumanist Vision

It may be argued that it does not matter for transhumanism that materialism is not capable of fundamentally and exhaustively accounting for everything. That, despite these shortcomings, materialism in a plethora of cases can account for the explanation of phenomena, the identification of mechanisms, and the prediction of outcomes. So, materialism might not be perfect, but it has proven itself as sufficient at examining, understanding, and predicting the world to a certain extent. Therefore, it may be argued that, although it could be that materialism might not account for everything regarding the world and man, it accounts for enough to keep the transhumanist notion unscathed. This is *prima facie* not an unreasonable argumentation. The materialist view has served mankind well in its striving for progress and the expansion of knowledge. Many discoveries have been made and great inventions have resulted from it. However, that it has served in the past and present and perhaps will also have benefits for the future does not make it the best or right worldview. It could be that if another worldview had arisen through history that mankind would be in a much better place. It could also be that materialism has been the right view for mankind up to now but that continuing this trajectory will make mankind miss the mark. The traveler that

knows the destination but that puts faith in and follows a faulty compass will never reach it. Therefore, to just claim that materialism is a rightful presupposition of how to move forward based on the argument of past merits does not suffice.

The aim of transhumanism is to make man better, to further the evolution towards man's rightful destiny. As it in the definition of transhumanism states, it is about *"[…] the possibility and desirability of fundamentally improving the human condition […]"* (Bostrom, 2003b, p. 4). Seen from the materialistic viewpoint, the improvement of the human condition is obviously found in the realm of the improvement of the material aspects of humans. To have human material last longer, be stronger, work faster. This could indeed be seen as an improvement of man. However, if material is not all that man consists of, but that a part is non-reducible to material parts the question is whether the human condition can be improved by solely focusing on the material. The part of man that is not material is the part that is essential for man's experiences, the qualia. The qualia can be argued to be what gives meaning to life and what makes life worth living. The desire to be healthy and live longer is not usually expressed as an end on its own but rather as a means to be able to fully experience life and have more experiences. For instance, the desire to stave off aging and death is expressed in relation to be able to play with children and grandchildren and see them grow up. The discontent of aging comes with the melancholy of all that has gone past and all the experiences that are no longer a possibility. If the sole goal was to live as long as possible without illness, as a pure end in and of itself, it would be a very attractive option for people to choose to avoid the risks of the world and live as protected and sheltered as possible. People would try as much as possible to, for instance, stay indoors to avoid traffic accidents, avoid direct contact with people to reduce the risk of attracting a disease, and eat the most well-balanced diet possible without elements that have adverse health effects such as alcohol and refined sugars. The contrary is true, the aspiration and drive are to embrace the experiences of life, in whichever way someone may desire to find them, and do what is needed to have that happen. For some it is the warmth of being at home in the presence of loved ones, for others it is risking life and limb in thrill seeking activities, and everything in between that will give that indescribable inner feeling of life and being alive. This feeling can express itself in different ways and can be found in the big and in the small things in life, but it always has one thing in common, it is the qualia of what is seen, heard, felt, in those moments that makes the

difference. This is the part of man that the transhumanist vision does not take into account and that also cannot be fitted into it. The qualia cannot be enhanced and improved by a material approach since it is not founded in matter. So, at most, the transhumanist vision can only account for a partial improvement of the human condition.

It could be argued that this partial improvement may be enough. That, although not everything of man can be enhanced, what can be improved is enough to further man along on the path of evolution and is enough of a goal. However, it seems that the improvement of the human material is only conditional to the improvement of the experience, with experience, as argued above, being the driver behind the desire for longevity and other enhancements. The material-based capacities could be extended indefinitely, there is always a faster, stronger, better, but that has no value or direction in and of itself. Being stronger is only an improvement if it serves a purpose and if there is a reason for it. Thus, it seems that the goal of the improvement of the human condition is not so much to be searched for and found in the material improvement of man but rather in the values and experiences of man. This does not necessarily mean that material improvement is without any use in this; it can play a role and contribute to the improvement of the human condition. However, the issues and limitations that the materialist view runs into seem to necessitate a change from viewing the material improvement as being the end itself towards viewing the material improvement as only a means to a further end.

This is reinforced by the problem of non-contextuality. It could be argued that the considering of qualia as an essential and indisputable part of man that needs to be preserved is merely the expression of a differing worldview. However, this is where the notion of non-contextuality becomes of importance. As addressed in chapter three, the fact that the properties of material are context dependent means that there are no fundamental properties of matter. Therefore, man is not fundamentally physical but has a fundamental non-material part for which materialism cannot account.

5.2 Transhumanist Technologies

When looking at the different technologies associated with transhumanism, it seems that for some the materialist view and the transhumanist vision suffice despite their flaws. For instance, cybernetics and Brain-Computer Interface technology still seem reasonable, at least

to a certain extent. Brain-controlled robot prosthetic limbs that are already in use to restore lost motor function show that the workings of the human body can be understood and predicted enough to be able to attach a robotic limb to the body, connect it to the nervous system, and to use brain signals to move the robotic prosthetic by thought. The capabilities of robotic prosthetics have made major progression over the years and continue to do so. It is not unthinkable that this progress can continue to the extent that, instead of only restoring the normal motor function of a limb like a therapeutic prosthetic aims to do, it might be possible to provide someone with a robotic limb that has capacities and functions that surpass those of humans. The Brain-Computer Interface technology that is used to operate these robotic prosthetics also shows that the workings and mechanism of the brain can be deduced and understood to an extent that is enough to be able to operate an external by means of thought. This already has a variety of applications, and it seems reasonable to argue that this can expand further to provide humans with capacities or functionalities by using only their thoughts that are not possible now. Molecular nanotechnology uses the atomic properties of materials to produce structures and devices. Since it does not need more than the atomic properties it does not need to identify properties at such fundamental level that the problem of non-contextuality poses an impediment to it. So, for example, aiming to enhance human lifespan by means of nanorobots that traverse through a human body to detect and repair abnormalities or damaged cells does therefore not seem an unreasonable aspiration. Gene therapy is also focused on the material part of the body. The complex system is reduced to where it is possible to identify individual genes and their role in certain processes. Gene therapy is already used in medical treatment and technologies like CRISPR aim to edit genes to produce specific outcomes. Since gene therapy limits itself to the material part of man, the limitations of materialism do not seem to have serious implications to whether it is in principle possible. It only limits gene therapy to not be able to have direct effects in the phenomenally conscious part of man's mind.

Nevertheless, it seems that for other transhumanist technologies and ambitions the limitations of the materialist view have more implications. For instance, for cryonics, the ambition to freeze people after their legal death to resurrect them at a future time when immortality, or at least a significant life extension, is possible. Here, the 'hard problem of consciousness' becomes a problem. Within the materialist view it is possible to understand

and explain the workings and mechanism of the body and brain. To have a body function again after its death does therefore seem within the realm of possibilities. Nonetheless, resurrecting the body is not enough, the mind also needs to be revived. The problem is that when a materialist view is adhered it cannot be fully understood how the mind works and what happens after death. It could be that resurrecting the body will fully revive the mind. That the mind, although not fundamentally material, is fundamentally part of the body. It could also be that part of the mind is separate from the workings of the body and that after death it can never be regained. The materialist view cannot provide an answer to this but only guess and hope that cryonics will work.

The flaws and limitations of materialism impose vital implications for the concept of mind uploading. As mentioned before, certain aspects of consciousness can be captured in material processes and mechanisms, and it might be able in time to understand this enough to replicate or copy this part of a human onto an external source. However, this is not the case for a significant aspect of consciousness, the qualia. It seems then that it might be possible to upload a working mind, only it will be without the phenomenally conscious part that provides man with its qualitative experiences. This seems more akin to creating a computer or artificial intelligence than to creating an actual digital person. So far, the general opinion is that computers and AI lack critical characteristics, such as consciousness, for them to have inherent moral value like people do. The uploaded mind would lose these same characteristics that set humans apart regarding moral value. The reduction of man's mind that is needed to be able to upload it would then make man lose its moral value. Therefore, the materialist view is too limited to enable mind uploading to a sufficient extent.

Artificial Intelligence (AI) is a complicated technology to address because of its variety of applications and aspirations. It also depends on the extent of the technology what the implications will be. For instance, virtual reality (VR) that is meant for people to temporarily visit using a VR headset could be relatively unhindered. However, VR that is meant to replace the world and for people to upload their mind to, that is an ambition that goes further than the limits of materialism allow, as also discussed above. Another ambition that might be possible to an extent for AI is the augmentation of certain cognitive capacities, for instance by implanting a chip; however, this is limited to those capacities that can be understood enough by the materialist way of inquiry. The highest aspiration of supporters of AI is that of the

creation of an artificial human being, where AI reaches human-level intelligence and then surpasses it to reach singularity seems more problematic. The elements of consciousness that are part of the 'hard problem' seem out of reach of AI. Therefore, AI can only reach human level, and perhaps above, on a reduced part of the human cognitive capacities. Thus, the implications are such that they limit the possibilities of AI but do not completely inhibit them.

There is a general trend to be noticed throughout the implications of the flaws and limitations of the materialist view for the technologies associated with transhumanism. Where the technology only aims to add or alter a part of man but does not aim for essential or full change, it can arguably be within the possibilities that the materialist view allows for. For example, a robotic limb changes a part of a human being but does not constitute a full or essential change. The human being remains but has an add-on. On the other hand, replacing the entire human body with a robotic body would mean an essential or full change. This would require copying or uploading the mind which is not within the reach of the materialist view. At least, not without reducing man to a simplified version in which an essential element of man's mind, the qualia, is lost.

Chapter 6 – Societal Support for the Transhumanist Vision

As addressed, the transhumanist movement believes that there is a moral urgency for society to support the vision. In this chapter, the extent to which society should support the transhumanist vision will be addressed. To do so, the type of support necessary to realize the transhumanist vision, based on Bostrom, will be addressed. It will be argued that this type of societal support is not warranted. After this, two other types of societal support will be introduced, moral and limited support, and discussed.

6.1 Proactive Support

In the introduction it was addressed that Bostrom (2005b) states that there is moral urgency for the realization of the transhumanist vision as well as the necessity for societal support. His argumentation is that people will die and suffer who did not have to if they had had access to transhumanist technology, and that therefore society should support in making this possible. He expresses two main elements that require support:

> *What is needed for the realization of the transhumanist dream is that [1]* ***technological means*** *necessary for venturing into the posthuman space* ***are made available*** *to those who wish to use them, and that [2]* ***society be organized*** *in such a manner that such explorations can be undertaken without causing unacceptable damage to the social fabric and without imposing unacceptable existential risks. (Bostrom, 2005b, p. 9, emphasis and numbering added)*

Here, this is interpreted to imply that society should provide proactive support that contains the making available of financial means, resources, and supportive policy. Financial means and resources are needed to make the required technological means available. This includes elements such as allocating public funds, tax benefits, infrastructure, raw materials and semi-finished products, and knowledge. Supportive policy is needed to organize society in such a way that it enables transhumanist explorations. This includes any policy that is specifically

originated for and is aimed at promoting transhumanist endeavours in whichever way. This simplification and clear distinction will be made for the sake of clarity in this thesis.

The moral urgency, and the following moral request for societal support, is founded on the belief that the transhumanist path will lead to the desired outcome. That transhumanist technologies will, with certainty, prevent the (premature) deaths and suffering that Bostrom claims necessitate moral urgency. This implies the conviction of the transhumanist vision being morally right and more than it being just a way of viewing man and the world. This also can be seen in the comparison that Bostrom (2003b, p. 46) makes between transhumanism and religion. He acknowledges that there are similarities between the two, that just as religion, transhumanism *[…] offers a sense of direction and purpose and suggests a vision that humans can achieve something greater than our present condition (2003b, p. 46).* However, he also makes a clear distinction between the two in that where religion relies on supernatural powers and divine intervention with a focus on the afterlife, transhumanism relies on empiricism and scientific and technological development with a focus on this physical world. By this, implicitly stating that transhumanism focuses on what is here, real, and a truthful representation of man and the world. Nevertheless, as chapter four addressed, the material view of transhumanism is not as undisputed as portrayed by the transhumanists. It cannot account for part of human nature, the qualia, and it has an internal flaw, the problem of non-contextuality. The combination of these two problems is crucial. Since materialism holds that physical matter is the fundamental reality, the lack of accounting for qualia could be dismissed by transhumanist by stating that if qualia cannot be explained in terms of manifestations or results of matter and physical phenomena, it cannot be part of fundamental reality. However, this is refuted by the problem of non-contextuality. This problem indicates that physical matter is not the fundamental reality. Therefore, what cannot be explained by materialism, such as qualia, is not automatically disqualified from being part of fundamental reality, it could very well be more fundamental than matter. So, the problem of non-contextuality means that the problem of not being able to account for qualia cannot be dismissed. The same goes the other way around. Transhumanists could state that materialism approaches fundamental reality close enough and is able to explain enough to base a truthful vision of human nature on. However, the problem of accounting for qualia makes clear that this is not the case since this shows that there is part of human nature that is excluded. This means that instead of being

based on what is fundamentally true and *the* worldview, transhumanism is merely based on *a* worldview amongst other worldviews. As beforementioned, to Bostrom (2003b, p. 46) transhumanism and religion offer similar functions with the difference being in how they aspire to do so. According to him, this difference in how is what sets the transhumanist vision apart and above that of the religious vision to make its realization a matter of moral urgency. However, as argued above, the transhumanist worldview is not *the* worldview but *a* worldview, just as the religious worldviews are too one of many. This places the statement that underlies the claim for moral urgency in a different light. It is put forward as if it is matter of fact that the realization of the transhumanist vision will indeed improve the human condition, including the prevention of death. However, this is not matter of fact but matter of their view. Society does not deem the aspirations of a vision enough to provide moral urgency to proactively support. For example, religions also promise that following their vision will improve the human condition and provide eternal life, but society is not proactively supporting these either. Thus, given that the transhumanist vision is just *a* worldview on how to improve the human condition its realization does not have a moral urgency for proactive societal support. Not only does this mean that there is no moral urgency, but it also means that society should not provide proactive support. Societal support should not take a position on worldviews without solid justification.

It could be argued that transhumanism is already proving itself and that this is supportive of transhumanism being the right vision to proactively support. As some of the technologies associated with transhumanism have practical applications and these applications are generally supported by society. However, the practical application of the technologies has so far been therapeutic and not to enhance, for example, to restore function with a prosthetic limb. This makes clear that these technologies are not exclusive to the transhumanist vision, but rather technologies that are also used by transhumanism. Some of the technologies have also been used in attempts of actual enhancement, but these attempts are limited to the endeavours of individuals. The financial support for this has so far mainly been provided by affluential people such as main figures of technology companies like Google, PayPal, and Space X,(Farman, 2022, p. 1), a prominent figure of which is Ray Kurzweil.

6.2 Moral and Limited Support

However, that transhumanism is not the fundamental worldview it claims to be does not necessarily mean that there is no place for societal support. To continue the comparison with religions, the general conception is that religions also do not hold the fundamental worldview, but society still provides a certain level of support. This is justified because it is generally agreed upon that there are benefits to society to do so and the same could be the case for transhumanism. Societal benefits of transhumanism that can be thought of are for example, the beforementioned sense of direction and purpose and suggestion that humans can become better that it provides its believers. Also, the scientific and technological endeavours that are undertaken to try and reach the transhumanist aspirations can, as mentioned above, provide direct practical applications. So, although society should not proactively support transhumanism. There are other types of support that can be provided. Society should provide moral support for the transhumanist aspirations of human improvement. Moral support would be limited to endorsement. As addressed in chapter two, throughout history there has always been aspiration to progress and expand the capacities of man. Although the way progress is sought-after has changed, the aspiration remains the same. Every generation aims to be better than the one before, to be capable of more, to reduce suffering, and to live longer. The transhumanist vision that mankind has not yet arrived at its final form and that the human condition can be improved upon fits in with this. It could be argued that to society the aspiration of the transhumanist vision seems to be worth of moral support. Another type of support is limited support. This would entail a contribution of finances and/or resources. This would be warranted for transhumanist academic (including philosophical), scientific, and technological research and endeavours that have a benefit for society that is non-exclusive to the transhumanist vision and that outweighs potential downsides to society. By a benefit being non-exclusive to the transhumanist vision it is meant that it not exclusively seen as a benefit when considered from the viewpoint of the transhumanist concept of human nature. For example, the portrayed benefit of the ability to upload one's mind is dependent on the transhumanist vision. On the other hand, the ability to provide a prosthetic limb also has benefits from other viewpoints, such as the humanistic or religious viewpoint. As addressed in chapter five, there are technologies associated with transhumanism that are probable despite the problems of the materialism. These could also be applied in a that is not aimed at

improvement but rather at therapeutic purposes. For example, further research into brain computer interfaces could be supported as this will also have benefits for the therapeutical application of mind controlled prosthetic limbs. Whether it is appropriate to provide limited support needs to be assessed per individual project, endeavour, or technology. Whether what is proposed also includes elements with direct, non-exclusive benefits to society and that these benefits outweigh potential risks and disadvantages to society. The provided support should be in line with the extent of this benefit. The same approach applies to policies regarding transhumanism and its endeavours. It could be that it is of benefit to society to devise policy supportive of transhumanist endeavours. However, supporting the transhumanist vision should not be the main objective of such policy but only a potential side effect. The aim of the policy should be to support the direct, non-exclusive benefits to society. Also, although there should not be policy devised purely for the sake of limiting or inhibiting transhumanism as it should be free to aspire to a worldview of choice. It is warranted to implement policy aimed at mitigating risks and disadvantages of transhumanist endeavours on society.

Chapter 7 – Conclusion

The transhumanist movement perceives it as a moral urgency that society provides support to enable the realization of the transhumanist dream. The underlying implicit justification of this statement is that the transhumanist vision based on a reductionist materialist concept of human nature is fundamentally true. This statement has been examined in this thesis to answer the question to what extent society should support a transhumanist vision that is based on a reductionist materialist concept of human nature. To answer this question the case was made that the transhumanist vision is certainly based on a reductionist materialist concept of human nature. Then it was argued that this concept of human nature has fundamental flaws. The implications of this were addressed. This led to the analysis that the transhumanist vision is not fundamentally true. It is *a* worldview and not *the* fundamental worldview. Not only does this mean that the justification of the statement for moral urgency is nullified, but it also means that society should not provide proactive support. Societal support should not take a position on worldviews without solid justification. However, society should provide moral support for the transhumanist aspirations of human improvement. Also, limited support should be provided for transhumanist activities that have a benefit for society that is non-exclusive to the transhumanist vision and that outweighs potential downsides to society. The extent of the support should be in line with the expected benefit.

Final Remarks

The analysis provided in this thesis that transhumanism should be seen as *a* worldview provides context and guidance for the further ethical evaluation of societal support for transhumanist technologies and endeavours. This guidance entails that, to provide limited support a transhumanist technology or endeavour, there should be benefit to society that is non-exclusive to the transhumanist vision and this benefit outweighs potential risks and disadvantages to society. The extent of this benefit determines the extent of support that is appropriate.

The appropriateness of societal limited support for transhumanist technologies and endeavours should be assessed on an individual basis. As addressed, in each case it should be

considered if there is a benefit for society that is non-exclusive to the transhumanist view. However, it should be held in consideration that they are not just individual technologies and endeavours, but that they are connected under the overarching transhumanist vision. Therefore, the totality of the activities that are undertaken in the spirit of the transhumanist vision should also be assessed, particularly for combined risks and downsides to society. When it is considered appropriate to do so, measures can be taken, such as implementing policies.

The analysis provided in this thesis does not only have implications for the societal support for the transhumanist vision. It also has ethical implications for transhumanism itself. As discussed, the fundamental justification for the moral urgency assumes that the transhumanist vision based on a reductionist materialist concept of human nature is fundamentally true. However, the analysis showed that there is a fundamental flaw in this concept of human nature which makes this assumption incorrect. This leaves the transhumanist movement to make a choice between two options. One option is that transhumanism stays committed to the vision as is. That it accepts that the transhumanist vision is merely *a* worldview and not *the* fundamental worldview. This leaves transhumanism to continue moving forward in the chosen direction of what it perceives to be improvement. However, it must be assessed what this entails for the position and claims, such as the claim of moral urgency, of transhumanism. The other option is that transhumanism commits to the aspiration of betterment of the human condition based on a true concept of human nature. This would mean that transhumanism should cease it activities to enable reconsideration of its concept of human nature, for example by means of philosophical and scientific enquiry. Perhaps this could even be a joined endeavour with representatives of different worldviews and their respective concept of human nature. When a concept of human nature is established that holds up to scrutiny, this should be used to guide the transhumanist path and its activities. Nonetheless, this concept should remain under continuous evaluation and adjusted if and when needed.

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