

REFLECTION, window on the world

*Arie Voorburg, June 2024*

A worldview can be defined as a coherent collection of concepts, theorems, images and basic assumptions that provide an image of and way of thinking about the world.

A worldview describes the structure, function and nature of the world, and provides guidance on the general principles by which we should organize our actions within this world: how we are to act and create, and how we can influence and transform the world. As such it not only engages with our scientific understanding of the world, but also with our value systems and ideologies, as well as our ideas about sense-making, problem-solving, decision-making and correct action based on how we evaluate reality and the possible futures to which these actions may lead. We do not live in the world without biases and preconceptions, taking in reality raw and unmediated and converting it straight into objective knowledge. Our constructs of the world are deeply conditioned by cultural contexts. But it seems to me that this conditioning tends to be much less intellectualistic than the worldview metaphor and much worldview-talk implies. To the extent that we are preconditioned to map the world in certain ways, this tends to take place by virtue of rituals, habits, symbols, and forms of community life much more than it does by virtue of conceptual systems. It is therefore far more than a scientific explanation of the physical universe.

#### TECHNO-BIO SPHERE

Never in the history of biological life on this planet it had a species that managed to spread itself all over the world as humans have, and that also rose to the top of the food web in so short (in terms of evolutionary time) a period. If we do manage to improve the lives of eight billion, or eventually, nine or ten billion people, the pressure on the biosphere will only increase.

The Earth that sustains life may be considered in terms of different spheres. There is the lithosphere, made up of the rocky foundations of our planet; the hydrosphere, representing our planet's water; and the cryosphere, comprising the frozen polar regions and high mountains. The atmosphere is the air we breathe, and we are also part of the biosphere, made up of the Earth's living organisms. These spheres have been in existence, in one form or another, for most, or all, of our planet's 4.6-billion-year existence. Most recently, a new sphere has emerged – the technosphere and comprises not just our machines, but

us humans too, and the professional and social systems by which we interact with technology – factories, schools, universities, trade unions, banks, political parties, the internet. It also includes the domestic animals that we grow in enormous numbers to feed us, the crops that are cultivated to sustain both them and us, and the agricultural soils that are extensively modified from their natural state to carry out this task. The technosphere also includes roads, railways, airports, mines and quarries, oil and gas fields, cities, engineered rivers and reservoirs. It has generated extraordinary amounts of waste – from landfill sites to the pollution of air, soil and water. It has now become a globally interconnected system – a new and important development on our planet. The technosphere encompasses all of the technological objects manufactured by humans, but that is only part of it. It is a system, and not just a growing collection of technological hardware.

The technosphere might be regarded as parasitic on the different spheres in general and the biosphere specifically, altering conditions of planetary habitability. Obvious consequences include greatly increased (and accelerating) rates of extinction of species of plants and animals, and changes to climate and ocean chemistry that are largely deleterious to existing biological communities. But .... humanity collectively has no choice but to keep the technosphere operative – because it is now indispensable to our collective existence.

We need bold solutions to an existential problem: humans have become an immensely powerful planetary force, and after millennia of modest Nature-focused ways of living, humanity has morphed into an urban-industrial giant seeking to unshackle from Nature's embrace. But our remorseless interventions in the world's ecosystems are threatening our own future existence. Can we still change course?

While modern technological advances have allowed us to flourish as a species, it has catapulted humanity out of the Darwinian evolutionary scene. Human beings have acquired the role of a geological force, capable of stalling an Ice Age – and possibly driving another Great Extinction of life.

To try and align technosphere and biosphere is a challenge in this age of the Anthropocene.

- The biosphere, driven by solar energy and photosynthesis, is an essentially circular system, which is all about reproduction: organic growth, regeneration, species interdependence and communication. All wastes are recycled into new growth, assuring the continuity of life.
- The technosphere, largely powered by fossil fuel combustion, is an essentially linear system. It is defined by production: resource extraction, mechanical assembly, chemical manipulation, and linear waste disposal, with pollution systemically undermining the continuity of life.

One of the characteristics of human beings (and probably many other living creatures) is their self-awareness and rich mental life. Rooted within this emphasis is the question on what gives rise to mental experiences and the role of the body. Depending on how and where the line between the subjective mental life and the physical world is drawn, different concepts of human beings, their worth and their position in their environment can be derived. This can influence to what degree the use of technology is desirable, acceptable, morally acceptable or to be condemned, as the core of current debates on human enhancement. Especially the line between mind and body influences how emerging technologies such as bio technologies, nano technologies and information technologies are regarded. It must be emphasized that human nature is never purely natural but always includes technological aspects, but enhancement will produce new vulnerability, which is why it has to be discussed how human beings are influenced, opening up the dichotomy of the human and technology and rethinking their relation.

## WORLDVIEWS

The rise of this new era is described as a condition that is shaped significantly by the exponential development and convergencies of technologies and the Sixth Extinction affecting human and non-human beings on Earth. New technologies such as robots, Artificial Intelligence (AI), nano- and biotechnology, and the Internet of Things emerge and make digital, physical and biological dimensions merge with one another. As these boundaries can neither be distinguished by the human mind nor can humans be defined without technologies since they rely on them, a new kind of human identity is needed to be described.

The current dominant mechanistic worldview is challenged by emerging worldviews, like its counterpart, the ecological worldview, and the anthropocentric and technocentric worldview.

Focused on the interaction of humans, technology and nature, and thus, major prevailing worldviews will be assessed that prioritize each of these elements independently: anthropocentrism, technocentrism, and ecocentrism. Transhumanism / post-humanism fall between these worldviews and are more future-oriented. Given the need to find a symbiosis between humans, technology and nature, this project focusses on these three aspects for the assessment of each worldview.

**ANTHROPOCENTRIC ORIENTATION AND HUMANISM.** Humanism carries a variety of meanings, generally humanism can be characterized by the ideological and cultural movements towards modernity and away from traditional thinking (antiquity). Humanism is a belief system that severely reduced the importance and relevance of religious doctrine in favor of reason, rationality and the belief in natural sciences. The anthropocentric orientation places humans at the center of meaning, value, knowledge and action, the privileged position of being the supreme species on Earth, consequently diminishing and subordinating the perspectives of nonhuman entities.

## THE ANTHROPOCENTRIC WORLDVIEW

The anthropocentric worldview has been dominant in the Western world for the last few hundred years. Anthropocentrism assumes that values and ethical considerations are human-centered. These ethical considerations entail the construction of human rights based on natural laws and the development of the empirical scientific method. The anthropocentric worldview coincides with the normative ethical approach of utilitarianism in terms of historical development. In utilitarianism, the virtue of hedonism was highly valued. The developed technology gave humans a higher capacity to influence their living environment at the cost of non-human beings, inanimate objects and substances. Therefore all non-

human beings, inanimate objects and substances are means to human ends under anthropocentrism. Human beings are perceived as the starting point and the center of all that is, elevating the importance of human beings above other forms of matter. This human-centered focus not only shapes mindsets but also influences policymaking and prioritizes budget, resource, and time allocation to human-focused over non-human-focused interests and research.

Three types of anthropocentrism can be distinguished: metaphysical, moral, and tautological anthropocentrism. Metaphysical anthropocentrism places humans at the top in the order of all beings. This position for humans is often justified based on religion or rationality. Moral anthropocentrism regards human beings as the only factor considered in ethics, disregarding non-human beings in ethical debates. Tautological (self-referencing) anthropocentrism claims all humans' experience of value is human, and therefore tautologically anthropocentric. In other words, all that can be experienced is from a human perspective, meaning by default.

Humans are the central point of view from which we interpret everything, which is thus inherently anthropocentric. These different types of anthropocentrism demonstrate how human beings are regarded as superior to all non-human existence and provide a glimpse into the essence of this worldview. From these three types of anthropocentrism, it is possible to conclude its stance on technology; namely that just like nature and any resource, technology is there to be used as a tool or enhancement by humans.

#### THE TECHNOCENTRIC WORLDVIEW

The technocentric paradigm is rooted in rationality, realism, science and fact and asserts that the earth is exploitable and that it should be utilized by humanity, as humans are superior similar to anthropocentrism. A technocentric paradigm, however, views technology as the driving force of human activity, something around which humans and the environment must be built. Within technocentrism, technology should be at the forefront of the economy. The technocentric paradigm shifted towards focusing on energy-efficient technologies rather than reducing overall consumption further emphasizing the focus on the economic growth of humanity ushered in by technology. The technocentric worldview is based both on experimental and theoretical aspects and embracing inter-disciplinarity at the interface of chemistry, materials science, physics, biology, health sciences, and engineering, as the key element of transformation.

Moreover, technocentrism has the tendency that most problems can be solved with wealth and this value can be further signified by the economic approach to continuous growth.

## TRANSHUMANISM

Transhumanism aims to go beyond humanism, yet transhumanism remains human-focused in the sense that humans as a subject still take center stage in this worldview. Similar to the other worldviews, it is subject to multiple interpretations and varying characteristics, but overall, this view is seen as the perspective of humans reaching beyond their natural limits physically, intellectually, and socially, with the help of technical innovation. Transhumanism can be described as a class of philosophies of life that seek the continuation and acceleration of the evolution of intelligent life beyond its currently human form and human limitations by means of science and technology, guided by life-promoting principles and values. This is why it can be referred as an intensification of humanism.

The anthropocentric, humanist view of people coming first is implied in this worldview. Yet the core belief has more to do with human advancement using technology and leaves the means of how the resources for this technology are gathered out of the discussion. Still, the implications of this worldview do suggest that technology and the resources needed to provide said technology are to be gained through whatever means, with little regard to the means with which these resources were obtained.

Transhumanism has brought forth a set of values regarding technology and humanity in three areas: critical thinking, visionary narratives and technological innovation. Stating that it is a form of practical optimism where the core beliefs center around being curious, asking questions and applying imagination. It also places emphasis on individual responsibility; something that tracks with the desire to enhance an individual's abilities through artificial and technological means. This worldview is thus also linked with a higher degree of individualism.

## POSTHUMANISM

Posthumanism can be defined briefly as an intellectual framework for understanding reality that is post-anthropocentric and post-dualistic; for posthumanism, the natural biological human being as traditionally understood becomes just one of many intelligent subjects acting within a complex ecosystem. Departing from humanism, post-humanism rejects humans' exceptional position *vis-à-vis* other species. Instead of considering humans binarily opposed to non-humans, it invites us to critically rethink the identity we have attributed to humans. Post-humanism highlights the entanglement of humans, animals, plants and other living and non-living beings. By embracing a relational ontology, in

which the mutual relations between things constitute the things themselves, beings cannot be conceived of as individuals. Post-humanism de-emphasizes the agency of humans and draws attention to the role of non-human agents, placing the same value on all beings. As a result, placing humans at the top of a moral hierarchy stops making sense; the human subject is no longer a singular entity but a more complex ensemble. This implies that thinking and knowing are not exclusively the prerogatives of humans, but take place in the world, which is defined by the co-existence of multiple organic species and technological artifacts alongside each other.

#### EMPHASIS ON THE NEED TO RECOGNIZE THE INTELLIGENCE OF NON-HUMAN BEINGS.

For too long, humans have been blind to the dynamic and sentient environment that our naked eye cannot capture. Indeed, the more-than-human intelligences that surround us are very much there, albeit invisible to unmediated human vision. Yet, as with ultraviolet light or the frequency of electrons, technology can help decode these intensities, translating them into some form which is appreciable to human understanding.

Emerging and converging technologies can help us to connect to the intelligences of the more-than-human world, increasingly blurring boundaries between us and technology will help us see ourselves as being interconnected with, rather than separate from non-human beings. Insofar as humans insist on maintaining their fixed anthropocentric standards as to what might be classified as intelligent or alive, we will not be able to recognize the existence and agency of more-than-human beings. Only by acknowledging this can we begin to decode the interactions within the more-than-human world and even the interactions between human and non-human agents. This is crucial for acquiring a more ecological view of our relationship with our environment, and a step forward in becoming post-human. Once we have accepted that intelligence arises from the interrelatedness of things, we might come to the realization that artificial intelligence might not be artificial, but rather, ecological. Not artificial intelligences but non-human, digital beings. This insight could in turn inspire the further development of technology.

Some forms of posthumanism focus on the ways in which our notion of typical human beings as the only members of society has been continuously challenged over the centuries through the generation of cultural products like myths and works of literature. Posthumanism address the ways in which the circle of persons and intelligent agents dwelling within our world is being transformed and expanded through the engineering of new kinds of entities such as human beings possessing neuroprosthetic implants,

genetically modified human beings, social robots, sentient networks, and other advanced forms of artificial intelligence (i.e., through processes of technological posthumanization).

Synthetic posthumanisms defines posthumanity as a set of hypothetical future entities (such as full-body cyborgs or artificial general intelligences) whose capacities differ from – and typically surpass – those of natural biological human beings and whose creation can either be intentionally brought about or intentionally blocked, depending on whether humanity decides to develop and implement certain transformative technologies such as those relating to genetic engineering, neuroprosthetics, artificial intelligence, or virtual reality. Such posthumanisms generally have a strong future orientation; they rarely give detailed attention to events of the distant past, and they conduct an exploration of power structures or trends of the current day only insofar as these offer some insight into how future processes of posthumanization might be directed.

Hybrid posthumanisms is the form of metahumanism: it reflects on the metabodies of human beings as they exist today and synthetic insofar as it recognizes that new kinds of metabodies will be created in the future, largely through the ongoing technologization of humankind.

The development and discerning forms of posthumanist thought is becoming increasingly important as society grapples with the ontological, ethical, legal, and cultural implications of emerging technologies that are generating new forms of posthumanized existence.

#### REALITY AS IT IS

In contrast to this rather optimistic or inspiring picture for humans, is the very depressing, anxiety-inducing realization that we are in the midst of a mass extinction process. The species extinction rate is about 1,000 times higher than it would be without human intervention in the evolutionary process. Rates this high threaten the stability of the Earth System, biophysical tipping including the climate, thereby altering precipitation patterns of frequency and intensity. Added to the exploitation of resources and the contamination of water, soil and air, climate change puts further pressure on entire ecosystems' habitats, which are rendered inhospitable for certain species. Because every species is part of an interconnected ecosystem, the loss of one species directly affects other species. And because every ecosystem is interconnected in a planetary-scale equilibrium, the health of one biome affects that of others. The extinction crisis we are experiencing therefore poses a very existential, urgent threat to life as we know it.



## ECOCENTRISM / ECOCENTRIC WORLDVIEW

Under the techno-human condition, anthropogenic-induced environmental change and the domination of the Earth's ecosystems have reached a global scope and a permanent geological time-scale. The detrimental impacts and degradation of human activities have accelerated and intensified in various areas. This includes the overuse of resources, and overloading that is over the limits, and by all this endangering the integrity of the fragile ecologies of planet Earth and its climate. One of the main drivers of this excessive matter/energy throughput is the construct of an unlimited economic growth in a limited world that is nihilistically producing ecological and other forms of devastation and destruction.

Conceptual disconnection and practical alienation from materialities and bodies, the appropriation of (capitalist) desires, and fantasies of constant growth and repeatable progress have gained increasingly ideological traction and power. Disembedded from their material origin(ation)s, fossil fuels, like coal, gas and oil as well as other raw-materials, function as energy resources that have ignited a Promethean fire. This has fired up first civilization and later an industrialization machine, enframed in the illusory image of endless linearized growth. Over time, such orientation has generated not only a vast emptying out, but also devastating by-products or supposed side-effects that become increasingly a central problem. In particular, it is an inherent productivist orientation that is inherently unsustainable as is producing both burn-outs and over-shoots. The human constructed but unsustainable realities are demonstrating an existential precariousness of our way of living.

A revived turning may then contribute to a transformative transition away from an overly human-centered, deadening Anthropocene towards a more inclusive, enlivening ecocene or zoë-cene. This marks the transforming of Earth that is radically altering organizations and society on a meso-level as well as their acting members on a micro-level towards wiser ways of operating and living. This Ecocentric practice means leaving behind an unsustainable productivism, while cultivating a non-anthropocentric ethos which allows human and non-or other-than-human worlds to peacefully coexist, co-evolve and co-creatively unfold on each on their own terms and in a new understood common sense. Such a mindful ethos reconfigures and inter-relates anew with ourselves, others and the world.

Instead of sustainability we need a fresh mode of thinking about our place in the world. Eco-mutuality offers an inspiring concept in this new worldview. Its meaning is immediately apparent — the goal of a mutually enhancing relationship between humans and the Earth and its living and non-living creations.

The ecological worldview sees the phenomenal world as constantly regenerated through interactions within systems at all scales and levels of existence (physical, intellectual, emotional, social and spiritual). These interactions result in and from flows of matter, energy, information and influence, as well as processes of adaptation and self-organization, which in turn allow these systems to evolve. In this world, phenomena do not exist independently, but come into being through different types of relationship and the processes they provoke. A world that is constantly created through the interactions engendered by these processes and relationships, suggests the third main theme:

From the observable qualities of the world as revealed by sciences ranging from quantum physics, systems thinking and ecology, to neuroscience, psychology and sociology, three main narratives can be identified.

- The first is the need to consider the world as a whole - an interdependent and interconnected living system in which humans are an integral part of nature and partners in the processes of co-creation and co-evolution. Humans, their social structures, and their biophysical environment, form one integrated social-ecological system in which humans and their artefacts are an indivisible part of the biosphere and they, like any other organism, participate in and co-create the metabolic and change processes that shape the biosphere. However, the addition of the human mind introduces properties of self-reflection and symbolic thought that allows the intentional creation of novelty and the ability to direct change within the system.
- The second is that the ecological worldview is first and foremost a relational view. While the ecological worldview draws on an understanding of nature and its processes and relationships, it is a much broader concept than that encapsulated in classical ecology or even ecological economics. Implied in 'ecological' is an understanding that we are dealing with living systems and all that comes with such systems, including connections, flows, relationships, interdependence, evolution and consciousness.
- Third, the world is dynamic, ever-changing, and therefore impermanent. Even seemingly permanent phenomena are undergoing constant fluctuations and change at both a micro and macro scale of existence. As these small-scale changes reach certain critical thresholds (or bifurcation points), they introduce changes in the organization of the system (or phenomenon) at larger scales. Eventually the changes brought about at smaller scales will cascade up the scales and transform the identity of phenomena at even the largest scales until a point is reached where the identity of the phenomenon has changed irrevocably (e.g. the mountain has turned to

dust, the star has become a black hole). These changes come about because of interactions in open systems between objects and subjects over time leading to essentially unpredictable and irreversible processes.

Because of the inherent complexity and non-linear dynamics found in the systems that constitute the world, the world is not only impermanent and ever-changing, but also largely uncertain and unpredictable. In addition, our knowledge of the world is uncertain, constantly changing and relative to the viewpoint of the observer. Thus, accurate prediction and certainty are elusive goals at best. In such a world it is necessary to be able to respond and adapt to perturbations and fluctuations. The ecocentric worldview has the potential to create a future where the damage done to the biosphere and to our social systems has been restored, and people can live in mutually supportive symbiosis with their social and biophysical environment (their whole ecological system) – the one nurturing and growing the potential of the other.

Ecocentrism is a worldview that sees humans as a part of nature but does not place them above nature. Ecocentric conservation and regeneration argues that actions for one species should not come at the expense of others and opposes unjust conservation and mastery of one group over nature or another. The main theory within this view is the intrinsic value theory, which states that nature, and all its non-human components, have an intrinsic value without depending on humans valuing it. It emphasizes the importance of regeneration of the natural world in its current state without opposing the social world but instead aiming for a co-evolution and co-existence of both. Based on the idea of whole or living systems thinking in sustaining life-enhancing conditions this highlights the value of natural coexistence and harmony.

How do you view the world? It is a big question and challenges not only what you believe but why you believe it and how it impacts the rest of your life.