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CHTHULUCENE AND PUBLIC SPHERE:
A PERSPECTIVE ON NEW GENERATION PUBLIC SPACE

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KHTHULUSEN VE KAMUSAL ALAN:
YENİ NESİL BİR KAMUSAL MEKAN PERSPEKTİFİ

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The living system, which can constantly change/improve itself with dynamic dialogue and feedback systems, seems possible with the development of human. This dream of a public space, where everyone is on an equal plane, is dedicated to my mother Güller, my father Nedim and Oğuz.

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Dinamik diyalog ve geri bildirim süreçleriyle kendini sürekli olarak değiştirebilen/geliştirebilen yaşama sistemi, iletişimin gelişmesiyle mümkün görünmektedir. Herkesin eşit düzlemde olduğu bu kamusal mekân hayali; annem Güller'e, babam Nedim'e ve Oğuz'a ithafen.

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ABSTRACT

CHTHULUCENE and PUBLIC SPHERE: A PERSPECTIVE ON NEW GENERATION PUBLIC SPACE

The essential function of public space is providing a place of equals for diverse people, ideas, and acts. To pursue this ideal, this thesis aims to develop an understanding of new generation public space, through which a milieu of equals becomes possible. The thesis develops a perspective for an understanding of all-encompassing publicity -where all voices are equal, through Donna Haraway's concept of Chthulecene which refers to physical existence, and Jürgen Habermas' definition of public sphere which refers to social existence.

The thesis is founded on the relation amid the development of civilization, the technological transformation, and the modes of production from the perspectives by Human-Nature relations and the Kardashev Scale. It examines the definitions of the current epoch, through the concepts of Anthropocene and Capitalocene. However, the thesis, while criticizing the devastating footprints of humanity on the world in the contemporary era, it also values the critical thinking capacities of humankind developed by the same Anthropocenic era, which provides grounds for the theoretical framework of this thesis emphasizing the awareness for a symbiotic collaboration of public co-living. Manifesting itself on the idea of a spatialization where a milieu of equals becomes possible, the thesis, emphasizes the priority of collective consciousness and the merits of cohabitation.

An understanding of such a public space, which can be developed and realized artificially by digital tools, implies a possibility of an all-encompassing spatialization for a Chthulucenic World in the distant future. A Chthulucenic spatialization and public space idea, that can constantly change/develop itself, provides the main inspiration and motivation for this thesis.

Keywords: Chthulucene, Public Space, Public Sphere, Digital Tools, Spatialization

ÖZET

KHTHULUSEN[1] VE KAMUSAL ALAN: YENİ NESİL BİR KAMUSAL MEKAN PERSPEKTİFİ

Kamusal alanın temel işlevi, farklı insanlar, fikirler ve eylemler için bir eşitler ortamı sunmaktır. Bu tez, bu ideale doğru ilerleme sağlayabilme amacıyla, arzulanan eşitler ortamının oluşturulabileceği yeni nesil bir kamusal alan yaklaşımını tartışmaya açmaktadır. Tez, Donna Haraway'in fiziksel varoluş düzlemine işaret eden Khthulusen kavramı ve Jürgen Habermas'ın sosyal varoluş düzlemine işaret eden kamusal alan tanımı üzerinden; her şeyi kapsayan, eş zamanlı eylemler ve kullanıcıların eşit sesleri ile ortaya çıkan bir kamusallık anlayışına perspektif açar.

Tez, İnsan – Doğa ilişkisi ve Kardashev Ölçeği'nden hareketle uygarlığın gelişiminin teknolojinin ve üretim biçimlerinin dönüşümüyle bağlantılı olması üzerine temellenir. İnsanın içinde bulunduğu mevcut çağ tanımlarını, Antroposen ve Kapitalosen kavramları üzerinden inceler. Tez, aynı zamanda, akıl merkezli Antroposenik dünyanın kazandırdığı eleştirel düşünmenin gücüne dayanarak mevcut çağda insanın dünya üzerindeki izlerini eleştirir ve simbiyotik bir iş birliğine dayalı, bilinç ve farkındalık merkezli bir kamusal yaşama sisteminin teorik altyapısını oluşturmayı hedefler. Eşitler ortamının mümkün olduğu bir mekânsallaşma düşüncesi üzerine kendini kuran tez, kolektif bilincin önemine ve birlikte yaşamanın yararlarına vurgu yapar.

Günümüzde dijital araçlarla yapay olarak geliştirilebilecek bir kamusal alan anlayışı, bu tez için, uzak gelecekte olabilecek, Khthulusenik, her şeyi kapsayan, bir mekansallaşma fikri için bir gerçekleştirme zemini sunar. Eşitler olarak birlikte yaşama idealiyle, kendini sürekli olarak değiştirebilen/geliştirebilen bir Khthulesenik mekansallaşma ve kamusal alan fikri, bu tez için temel ilham ve motivasyonu sağlar.

Anahtar Sözcükler: Khthulusen, Kamusal Mekân, Kamusal Alan, Dijital Araçlar, Mekansallaşma

[1] "Khthulusen" is proposed as Turkish word for the concept of Chthulucene.

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LIST OF SYMBOLS / ABBREVIATIONS

QR	Quick Response
AR	Augmented Reality
IT	Information Technology
IoT	Internet of Things
AI	Artificial Intelligence
VR	Virtual Reality
GIS	Geographic Information System
NFT	Non-fungible Token
BCI	Brain-Computer Interface

1. INTRODUCTION

"Time present and time past
Are both perhaps present in time future,
And time future contained in time past."
...
(Thomas Stearns Eliot, 1941)

In the thesis, human-centric era definitions and criticism are read from the awareness of Donna Haraway. The thesis revolves around binary oppositions and focuses on the unique, fresh, meaningful narrative and conceptualization of Haraway which also can be defined as a design approach beyond all the binary oppositions: Chthulucene. Chthulucene, defined as a *state of affairs* (Haraway 2016). The changing perceptions of nature are the main ground for Chthulucene. To define and understand Chthulucene, the Anthropocene and Capitalocene eras are also interpreted.

The main problematic of the Anthropocentric world is that; human beings try to consider their development by ignoring the other living beings in the same environment. The world's current situation points out the necessity of transformation because being the master of the world belief is proving itself obsolete and defunct. Humanity has caused permanent, even geologically readable damages to the world through the Anthropocene era (Haraway 2016). The Earth seems to be on the edge of a new Holocene extinction due to humanity and its behavioral patterns (Ripple WJ, Wolf C, Newsome TM, Galetti M, Alamgir M, Crist E, Mahmoud MI 2017). With alarm signals of the Earth, such as global warming and pandemic, human begins to realize that they are no longer the master of the world. These signals indicate that Earth, which is the current living space of human beings, cannot maintain its spatialization feature for the existing system. These changes remind the human Maslow's Hierarchy of Needs. According to Maslow, the base needs are the psychological and safety needs beyond all daily human problems; the main problem is to have a space for living with sources for water, food, and optimum warmth (Abraham H. Maslow 1943). Through these signals, humanity begins to realize the necessity of sharing the larger habitat of Earth with other biological beings as well.

Some of the researches about the Anthropocene era point out capitalism as the cause of these ecological problems; thus, giving a different name to the relevant period, based on this context. Andreas Malm and Jason W. Moore claim that the capitalist mode of production (basically, the sale of natural assets for cheap commodities) demarcates an era, which they call "Capitalocene" to emphasize the eco/geological crisis (Jason W. Moore 2016). However, it seems unlikely that the critique of capitalism, which is described as a market or social system isolated from the sense of life, will lead us to sustainability or liberation. In the opinion of Donna Haraway, whose conceptualization led the thesis' approach, such approaches are practices based on "human exceptionalism". Opinions of capitalism, which are reduced to economy and sociality, should be approached cautiously (Haraway 2016).

The research focuses on reading the next spatialization of public space from a symbiotic perspective. Symbiotic perspective refers to collegial, interdependent relations network amid the users of public space. The conceptualization of this network of relations in the communal order, in which the contributions and differences of each living thing can become prominent, has been problematized. The possibilities of living together are discussed, where each member will be an essential constituent of an organic (relating to or derived from living matter) network. In the research, the interaction between all these compounds of the space is intended to be conceptualized.

Haraway's speculative fabulation, the definition of Chthulucene, was taken as the basis for conceptualizing human and biological beings' interaction processes for a broader understanding. The Chthulucene is roughly defined as a period when the human race will confront its arrogance, 'superiority traits' and engage in humble association with biological creatures on Earth, without time or history. Haraway points to an emerging "new synthesis" in interdisciplinary biology and art, an interdimensional era that connects human and non-human ecologies, evolution, development, history, technology, and more (Haraway 2016).

It is considered that the concept of Chthulucene defines this perspective in a more biological, hence physical sense. Merely public sphere is defined as a social existence. It is thought that how the concept of biological Chthulucene can correlate with the sociological public sphere discussion.

In the continuation of the research, the public space/sphere discussion, which is defined in two different perspectives, is held. The public sphere is primarily examined from the perspective of Jürgen Habermas. In this thesis, public space and the public sphere are defined respectively. At Habermas's "public sphere" conception, communicative actions are primary; and the public space provides an environment of social interaction. Current technological developments provide capable tools to make this communication fluent and possible. In this context, the technological developments, which are updated with the new modes of production respectively, are considered as interaction catalyzers in the public space.

> "Every mode of social organisation produces an environment that is a consequence of the social relations it possesses. In addition, by producing a space according to its own nature, a society not only materializes into distinctive built forms, but also reproduces itself." (Gottdiener 1993)

In the Human and Earth Relation section; primarily the ideas on the relationship between human and Earth, occurred by the modes of production, are discussed. The nature perception of the human is changing by technological developments. The human was thinking the mountains are unknown habitats and they were transcendent to this unknown area (David Nicholson-Lord 1987). After the first Industrial Revolution, by the technological developments in transportation, the mountains have become accessible, and humans started to realize the beauty of nature (Jay Appleton 1975). As soon as humans realized this potential, they started to define natural preservation areas/lands to protect nature as much as possible. But unfortunately, they were late and watched a lost nature as well (Stephen Forbes 1989). This progress is one of the technological contexts of the thesis.

The Human and Earth modification cycle continues with the transformation of production modes that gradually shorten their time between each other. Now, after a short while of Internet of Things, a new mode of production emerged: Society 5.0. The central theme of Society 5.0 is the capacity for processing the data, depending on the subject's demands, needs, and preferences. This means a simple feedback mechanism; the product renews itself with continuous human interactions and shared knowledge. However, Society 5.0 is not presented only as a technology-oriented approach. Based on the idea, it is stated that human characteristics should be emphasized, and individuals' preferences should be given priority for humanity to survive. Yet, it relies on personalized mass production.

The digital tools, which enrich the new generation public space specialization are the outputs of the new production mode, Society 5.0. With the advance of the digital tools contributed by Society 5.0, an environment of public space equipped with capable technologies can be experienced. The collection, analysis, and reflection of the data flow created by users around their communicative actions seem possible with Society 5.0 tools. With the changing technology, the users of public space, who have started to acquire virtual selves and themselves, are reinterpreting the public space with all their actions and decisions.

To clarify the concept of the public sphere from the perception of the thesis, digital knowledge commons emerge as a key concept. The data flow affecting the public sphere and the transformation of people's communicative actions into processable data, using various tools of the new production model, includes the discussion area of digital knowledge commons. As the focal point of digital knowledge commons discussions; organized, cumulative knowledge, sharing this knowledge, its use, property rights, and discussions on protecting these rights are also equally important.

Thus, the thesis claims that the all-encompassing social condition that Chthulucene conception inspires can be a possibility alongside Habermas' ideation of the public sphere. The thesis aims to recall the correlation between Habermas's social existence and a Chthulucenic, physical existence in public space. The distant future idea is for a public space that is imagined through the way existing users can interact in the same environment. The interactions between the thesis' concepts open a perspective for new generation public space approach.

The origin of this study is on the idea of simultaneous and synchronous dynamism of public space. With its multi-layered and multi-component structure, the public space is thought to be a living organism that has its own, unique multi-dimensional cycle. The research is built on the idea of public space, which transforms the perception of time-space with its simultaneous movement and lives/creates its own time perception. In this research, the equal sharing of public space is examined. A public space idea is imagined, which emerges by the simultaneous actions and equal voices of the users.

1.1. OBJECTIVE AND CONTEXT OF THE RESEARCH

The thesis grounds its approach on recent posthumanist theory from the perspectives of Donna Haraway and Anna Tsing. Anthropocene, Capitalocene, and Chthulucene relations are addressed by the axis of the human and Earth relationship. Next, the focus is on Chthulucene, which initiates perspective for the main design approach. The thesis develops a symbiotic public place perspective, with the foresight given by the potentially new mode of production. The network of relations is defined in the communal order where the contributions and differences of each user can become prominent. The possibilities of living together as constituents of an organic network are emphasized.

The research is expanded on public space and public sphere concepts in the literature and the differences between these two concepts. The different prospects of public space and the public sphere are emphasized. Then these two concepts are defined relevantly by the Chthulucene discussion. The aim is to think about a "new generation public space," where these two concepts can be blended. In the context of the Chthulucene, the thesis renders a definition for new generation public space. The main question of the thesis is: *Can the digital tools, which allow the digital knowledge commons to be reflected in public space, create a Chthulucenic public space perspective that is constantly changing/transforming itself with all its users' instant requests and needs?*

The research is also considered for improvements of the subquestion: *What kind of spatial context and manifestation can be established on the interaction of all the users, their demands and their information repositories who share the same environment?*

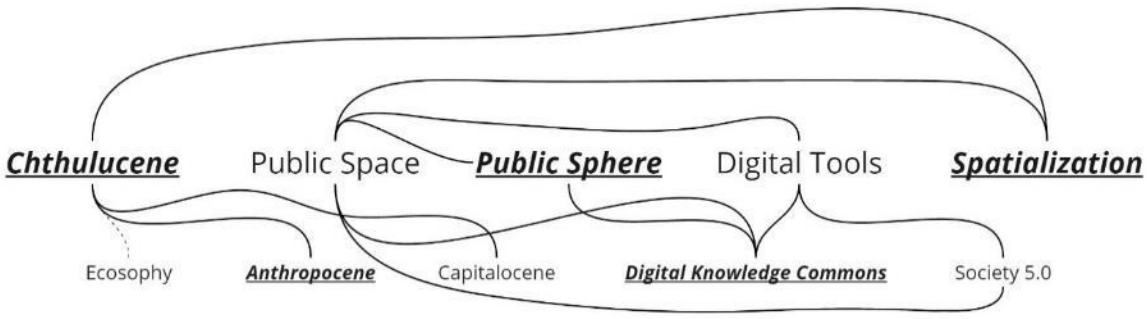

Figure 1.1: Interactions of the keywords (Seda Arslan 2021)

1.2. STRUCTURE AND METHODOLOGY OF THE RESEARCH

In order to create an understanding of public space, which is adopted as a common space, the thesis first tried to understand how human starts a relationship with other stakeholders with whom they share this common space. Human and nature interaction has been defined in three sections named The Wild, The Beautiful, and The Lost. In the beginning, humans perveived nature as savage because they were afraid of it. As they developed their technologies, they increased their communication with nature, and as they increased their communication, they began to see the beauty of nature. In the final section, realizing the disappearance of nature reminds human how late they are for action.

Afterward, the epochs are discussed starting with the Anthropocenic period which human created the Great Acceleration. In the Anthropocenic world, it is focused on the dilemma of the Anthropocene; human criticizes the epoch they are in, with the critical thinking they learned from the Enlightenment they created. With this criticism, the Capitalocene World is defined in the context of the argument that the cause of the problematic world created by human, is the mode of production of human. By criticizing the Capitalocenic World, the research is deepened into a distant future spatial idea; the Chthulucenic World imagination. By deepening the *global* perception that arises from Chthulucene, the concepts of *sphere* and *chôra* have been reached. In the continuation of the research, the spatial possibilities created by the perceptions of the sphere and chôra that create the public realm are examined. In this context, an interaction of the space project is given a study. In the world, which is rapidly urbanizing with the increase in population, an urban-based public space development in its context is mentioned. Although it is predicted that it will be urbanized, the rural public space, where it is thought that the real interaction with other users will take place, has been spatialized with a Chthulucenic approach on the axis of the chôra concept.

In Habermas's "public sphere" conception, communicative actions define public space. To think how this public space can develop with the interaction of all users that share the same environment may entail a scenario. The public space of a Chthulucenic world is discussed for its realization through Haraway’s point with the help of digital knowledge commons and digital tools. Habermas' public sphere discussions are providing further perspective for the perception of sociality that the Chthulucenic world inspires most.

Habermas defines a social existence in public space. The thesis questions the possibility of a Chthulucenic understanding, both in its physical and social presence. The thesis aims to define the transformative processes between these physical and social aspects. The main objective of the thesis is to focus on the reorganization of the public space users to fluently express themselves and develop mutual care for all concerns with the help of technology.

When the current applications of the new generation public space thinking are examined, it can be mentioned that a new spatialization depends on the mode of production of the human. In this context, Society 5.0 has been researched, which is predicted to be/will be determining the new modes of production of human beings. Then Society 5.0 tools have been defined. The knowledge organized by the effective use of Society 5.0 tools is conceptualized with the idea of digital knowledge commons. As the output of all these data, examples of the current new generation public space applications, that provide equalization, are included.

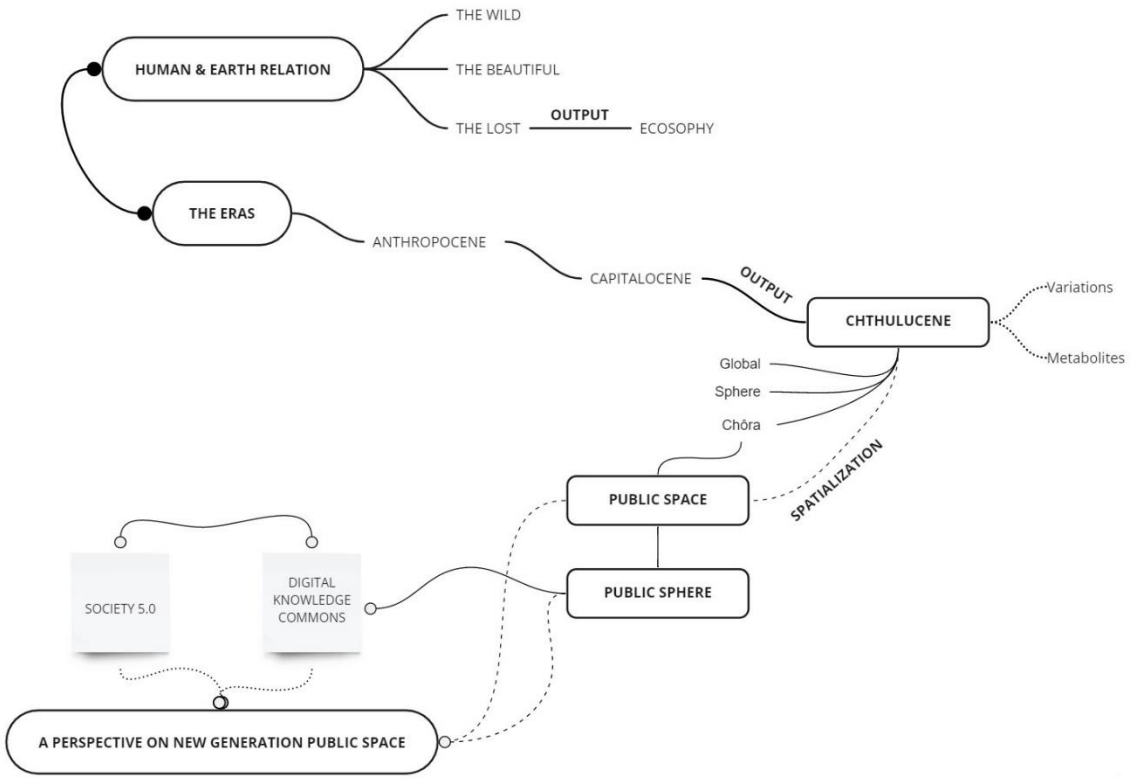

Figure 1.2: Mindmap of the thesis (Arslan 2021)

2. HUMAN AND NATURE RELATION

> *"Nature* is a deceptively simple and ahistorical term, suggesting intrinsic, unchanging reality. Yet nature has a history too, both in terms of human attitudes and human impacts." (Peter Coates 1998).

The word *"nature"* is generally thought of as a broad term that is used ambiguously. The usage of the term is ambiguous because it functions as an intuitive concept. To speak of the nature of something is often to define an unknown "x" that requires further research.

In this part of the theoretical framework, the changing perception of nature, forms of interaction with nature, and approaches towards nature have been researched throughout history. These changes in the perspective of nature to natural practices and their historical development have been examined. Anthropocene, Capitalocene, and Chthulucene relations have been defined as the relationship between human and nature.

David Harvey has an influential contention about nature: "There is nothing unnatural about New York City".[2] Jane Jacobs says "Human beings are, of course, a part of nature, as much so as grizzly bears or bees or whales or sorghum cane. The cities of human beings are as natural, being a product of one form of nature, as are the colonies of prairie dogs or the beds of oysters."[3] Both discourses expose that human activity is not outside the nature ecosystem. In the history of humanity, there have been continuous transformations in human-nature relations since the beginning. In the historical process, the perception of the human being to see themself as inherent or transcendent towards nature has transformed over time.[4]

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[2] David Harvey, Justice, Nature, and the Geography of Difference, (Cambridge, MA:Blackwell, 1996).
[3] Jane Jacobs, The Death and Life of Great American Cities, (New York: Vintage Books, 1992).
[4] To be inherent and transcendent stated in the research is viewed from the perspective of Daniel Smith. For Smith, transcendence and inherence are far from having an explicit meaning in themselves. Again, according to Smith, the discussion of transcendence-inherence in philosophy takes place around three basic problems: These are subject and subjectivity, ontology and epistemology. In the discussion of the subject, "transcendent" means any "outside" that is not inherent in the consciousness of the subject. In this context, post-Descartes philosophy predominantly perceives "immanence" as belonging to the subject, contained by its consciousness, that is, "immanent to the subject", while using "transcendence" as the sum of what transcends the subject and is out of his consciousness (Smith 2003, 47-50).

Architecture produces architectural meanings and spaces through these meanings in the context of the definition of "nature" or "natural". These produced meanings are abstracted over time and turn into new spatial meanings and spaces (Colin Davies 2011).

In anthropocentric approaches, there is a point of view in which human being is in the center and sees themself as the master/lord of nature (Susan J. Armstrong and Richard G. Botzler 1993, 53). However, it has been quite a long time since humans came to terms with the nature they live in. Today, humans can even experiment with its genetic nature (Guattari 2000, 7). It is possible to see the first concrete examples of this transformation in ancient philosophy. In Ancient times, the Milesian School can be considered as epochal of the nature perspective (Robert Lahaye 1966). The basic approach of Milesian School was to change the state of mind from mythos (myths) to logos (philosophy) based thinking way (Ahmet Cevizci 2010).

The Miletian School presented new ideas that challenged the dominant view of how the universe worked, which held that the will of anthropomorphized gods could only explain natural phenomena. As one of the first entirely scientific ideologies, the Milesians conceived of nature in methodologically observable entities (Lahaye 1966). Nature is explained by nature in the logos-based way of thinking, not with the transcendent entities (Cevizci 2010).

The view put forward in ancient philosophies is a form of perception that prioritizes and centers nature. According to ancient philosophy, nature as a whole is attempted to be understood primarily. Nature was approached as a respected, sanctified, and faith-centered being. The subject of 'what nature is' has turned into an effort to understand the most basic principles of nature by integrating with a philosophical effort. In a sense, the urge of human beings to discover nature has evolved into an urge to find the most fundamental principles of the universe. In this sense, it is possible to interpret the ancient philosophies as a synthesis of inherent and transcendent perceptions of nature and as an effort to realize the "transformation into an objective perception of nature" that is valid for everyone (Fritjof Capra 1992). Before the 1500s, the organic worldview prevailed in Europe. People lived in small, independent units and thought that nature had spiritual features (Capra 1992, 54).

They also believed that the interdependence of material facts and social needs should be placed above personal needs. Medieval science was also essentially different from modern-

day science. It was based on common sense and belief simultaneously, mainly aiming not to predict and control objects but to understand their meaning and importance (Cevizci 2001, 21).

In the 17th century, the new understanding of nature (especially Bacon's "knowledge is power" and Descartes's mechanical world view), which emerged as a result of scientific advances, dominated an understanding that humans were centered, and the measure was themselves. This new understanding has changed the way human beings perceive both themselves and their environment. This has also led to a mechanical conception of nature as a dominant worldview. Indeed, Descartes would build his view of nature on a mechanical basis. The belief of the Enlightenment, which refers to the human being glorified initially by pure reason, ultimately failed. In other words, "yet the wholly enlightened Earth radiates under the sign of disaster triumphant" (Max Horkheimer and Theodor W. Adorno 1995, 19). It can be said that the perspective was devoid of ecological balance and saw humans as the lord of nature. This perspective left nature entirely under human control and has been an essential factor in the emergence of environmental problems.

In Descartes' view, since the material universe is a machine, there was no purpose, life, and spirituality in the matter. Since the functioning of nature is tied to mechanical rules, everything in the material realm could be explained by the order and motion of its constituent parts. This approach influenced scientific observations and theories of natural phenomena until the 20th-century when physics brought a fundamental change (Capra 1992, 61).

The perception of nature as a machine rather than an organism strongly influenced mankind’s attitudes towards the natural environment. The basic system on which it was based in the Middle Ages was prone to ecological behavior. The visualization of the world as a living organism and as a nurturing mother was a restraining factor in humans' actions. As long as the world is seen as alive and sensitive, humans' destructive behaviors would be seen as contrary to human morality (Capra 1992, 61).

This transformation, which expresses the transition from an organic understanding of nature to a mechanical understanding, shifted the human-nature relationship. Moreover, it has designed everything that makes the environment its servant and as goods/commodities under

its domination. Along with these views of humankind, the mechanical understanding of the world, which can be seen as an output of Enlightenment, started to be seen as a historical view within the spread of criticism of the Enlightenment period in Western societies (Norman Hampson 1991, 56). The development and strengthening of ecology as a science have been crucial reasons for forming the ecological worldview at the philosophical level over time. This ecological world view develops ideas on the mutual interaction between society, nature, and the problems caused by this interaction. In this way, considering that all areas of life are related to each other, and a holistic understanding of nature and transformation has emerged (Dominique Simonnet 1993, 72-73).

Thomas Malthus also made essential contributions to the birth of ecological thought. Malthus expressed a reality that would demolish both mercantilists' and physiocrats' emphasis on growth and wealth. Until then, the natural resources on Earth (gold or land), which were seen as the source of wealth, were considered to be infinite or unlimited. However, Malthus' findings on the finitude of resources and the limit of natural resources (Kemal Görmez 1997, 73) radically rejected the basic assumptions of the mechanical economic view. Malthus talked about the limitation of growth and continuous development. Malthus also stated that despite the limitedness of natural resources, they could be increased with studies. He mentioned that consumers of these resources multiply efficiently faster than the increase of natural resources. Therefore, there are suggestions limiting population growth, in which natural resources can meet the needs of people. His contribution to the development of ecological thinking at the point of limitation of natural resources diverges from ecological thinking at the point of "struggle for survival," which he developed as a field of use for this finding (Capra 1992, 122).

Nature, which is meeting unlimited needs, will not meet all needs due to this limitation, and only those, who are vital in the struggle, will be able to survive. Malthus has calculated that when left on their own, the human population increased very rapidly. Their numbers were doubling every twenty-five years. However, food sources could not multiply at this rate. Malthus argued that population increases geometrically (incrementally, as 2^n) unless restrained by famine, war, disease, or force, but the food sources increase arithmetically (one by one) (David Pepper 1986, 93). In this case, the human generation was constantly in danger of starvation.

The main factors for keeping populations under control were such disasters as war, famine, and diseases. In short, some people had to die, for others to survive. Existence meant a "permanent war" (Gordon Marshall 1999, 470). The most common acceptance of this period is that nature can be considered and examined as a phenomenon, and empirical studies can be made based on experiments and observations (Capra 1992, 56-57).

Since ancient times, natural philosophers have expressed the "great chain of existence" in the form of a static hierarchy. Biologists Jean Baptiste Lamarck and Darwin corroborated the developmental approach by showing that all living entities evolve under the pressure and effect of their environment, starting from primitive, simple forms. In this way, they also destroyed the Judaeo-Christian thesis about biological species. Also, Charles Darwin has a vital place in the development of ecological thought. While explaining his views on evolution, Darwin has an essential place in introducing random mutation and natural selection (Simonnet 1993, 12). Thus, the universe began to be seen as a constantly evolving and changing phenomenon, in which complex structures consist of simpler forms rather than a machine built by the hands of its creator (Marshall 1999, 129).

It is possible to discover Jean-Jacques Rousseau examining the first criticisms of the effect of Enlightenment and modernity on the perception of nature. Rousseau's harmony and rhythmic structure while developing the social contract theory include the traces of ecological thought. Rousseau claims that property eliminates equality between people and that *there is equality in the state of nature* (Görmez 1997, 71). In this framework, Rousseau said that interventions in nature should be limited to the needs of humans (George Sabine 1969, 273).

The progression of human-nature relations or human-nature interactions has been researched from a general perspective. The research continues in a three-stage order: The Wild, The Beautiful, and The Lost. Human feared nature and thought it was savage at first. As they developed their technology, they improved their communication with nature, and as they expanded their communication, they saw the beauty of nature. In the final segment, human realizes how late they are due to the fading of nature. The changes in these three primary stages are spread over a long time, and no clear event can be given about the major breaking points.

2.1. THE WILD

In the first stage, there is a tendency to brutalize the non-self as a threat, to define nature as *wild/wildling*. Until almost the 18th century, humans' feelings towards nature is based on seeing themself (their species) as transcendent to other biological beings. The disorder that human cannot define in nature, which they see as not themself, represents human's fear of the unknown. The discomfort by this fear has caused human to try to control nature (what they do not know) constantly.

The first cities were often founded around temples and other religious monuments, representing order, excellence, and security (Yi-Fu Tuan 1974). In the 16th and 17th centuries, human kept plants under control; and tried to determine the direction of their development by trimming the trees and shaping them by cutting their branches (Keith Thomas 1983).

The philosophers of the time ideally believed that nature should be in geometric form rather than informal. Furthermore, it has been seen as a reflection of human beings' abstraction from nature and products of human intelligence (R. A. Preece 1991). This understanding has brought nature's irresistible, intertwined grift order to be perceived as a threat to the progress of human. While human development led to the destruction of forests and trees, these developments and land cultivation were seen as a victory of civilization (Thomas 1983). Again, before the 18th century, nature was perceived as a dangerous place with wild animals and stormy conditions. For example, Lake District National Park, a trendy national park in England today, was described by Daniel Defoe as the wildest and scariest place he had ever seen in the early 18th century (Nicholson-Lord 1987).

Until recently, in civilization, humans defend themselves as being above nature rather than being a part of nature while constructing its relationship with natural areas. This understanding of superior being is reflected in human relations with other people of its kind and her domination against animal and plant species. The places where humans live, built on the foundation of indigenous civilizations, learned ancient knowledge by conquering the wild (as described wilderness).

2.2. THE BEAUTIFUL

The second stage of humans' relationship with nature started to be developed in the 17th century, is the perception of *beautiful.*

The mountains, which were elements of fear, have become accessible by the developments in transportation. Increasing interest in agriculture and the concentration of the domesticated lands where agriculture was made, nature started to gain a definition, and the understanding as a threat was abandoned. Subsequently, the attitude of humans towards nature changed, and beauty began to be seen in the controlled environment and the wild (Appleton 1975). It is also stated that the trips called "Grand Tour" made by British aristocrats to Europe have also influenced this awakening (Christopher Hussey 1927). As a result, the beautiful landscapes of the feared mountains have become admired, and the wild mountains have become endless sources of inspiration for many works of art.

2.3. THE LOST

When it comes to the third stage of the relationship between human and nature, it is seen that the awareness of the lost nature occurs. The dominant discourse of nature since the late 18th century has been that of science (Pepper 1984). Science has surpassed philosophy and literature in understanding and interpreting nature (J. J. Clarke 1993). The basic idea that nature has many secrets that must be revealed so that people can control nature and benefit from it has brought science prominent (Arjen E. J. Wals 1994).

In the 19th century, scientific ideas contributed to the understanding of nature on a logical basis. As a reaction to the Industrial Revolution, human behavior towards nature changed again. Love of nature reappeared with the romantic trend (Stephen Budiansky 1995), and people began to believe in the necessity of protecting nature without disappearing completely (Forbes 1989).

As a result of the human-nature interaction developments described in three stages, at the end of the 19th century, respect and nostalgia for wild nature have occurred. American philosophers Ralph Waldo Emerson, Henry David Thoreau, and John Muir put forward

similar ideas in the American continent and pioneered the emergence of national parks. The leading name in this regard is John Muir. John Muir wrote two articles supporting the declaration of Yosemite as a national park for the magazine named The Century, which triggered the change of nature perception again. Thus, for the first time in history, discussions on the conservation of a land of nature had begun. In this context, the Yosemite campaign started and gave positive results. In 1890, the Yosemite region was legally recognized as a national park with its natural protection. This development marks a decision above all revolutions that can fundamentally change the process of defining the human habitat. For the first time, it was decided not to conquer a land of nature but to protect it. Nature has been approached as an object or a work of art that needs protection (Elif Kendir Beraha 2020).

Wilderness has been defined in many different ways. However, the definition contained in the 1964 Wilderness Act:

> "in contrast with those areas where man and his own works dominate the landscape… as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain".

The abbreviated and condensed definition in this act, which enables the wild to be seen as an asset that needs protection, contains two key points. Firstly, human has taken a position against the spontaneous communal understanding of life/nature and is obliged to change this attitude before the point of no return. Secondly, human being sees themself as a visitor in the world and tends not to take responsibility for their actions within this world. Conquering the wilderness has been at the center of colonial and pioneering progress for an extended period in recent history. Humanity has created central chaos for its habitat by masculinely seeing the wilderness as an irregular area that must be conquered.

Here, humanity still has a transcendent relation to the idea of being part of nature. It can be mentioned that it is also an objectification process. So considered, human has not formed the idea of constant change/transformation yet accepted that it is a part of nature. This issue was conceptualized under the leadership of Muir and started to be placed based on discussion. The concept of conservation of the period is not a more advanced idea than freezing the piece

of nature by taking security precautions around it and turning it into a visited region as if it was an exhibition object. This situation is against the basic meaning of nature, the transformation process through interactions. In this period, the understanding of nature still preserves its object state.

Since the first idea to protect a piece of nature emerged, critics have started to criticize the idea of wild nature. They argued that protecting natural areas was not a bad idea, and the wild nature perception hides important issues about nature and leads to wrong decisions. However, since these criticisms mostly remained within the environmental movement, it was impossible to reach large masses for a long time.

In the 20th century, the tendency to a more inclusive view of nature had increased. Human has turned to the idea of saving the nature around them, noticing the adverse effects of humans on nature. After the Second World War, the American nature conservation approach exhibited ranging forms from the preservationist movement (the approach to preserve nature as it is, in its original form) and the conservationist movement (the utilitarian approach, which advocates the idea of preserving nature with more rational and effective management) (Halil Özgüner, 2003).

2.4. THE ECOSOPHY

Humanity lived a vulnerable life in small, interconnected communities that experience nature-based organic relationships, characterized by the interdependence of material and spiritual events and where the needs of the individual are subject to the needs of the community (Capra 1992, 54). Therefore, to be able to create an environmental awareness, firstly a philosophical awareness should be created. Because while creating environmental awareness, human also realizes a series of behavioral changes that involve re-controlling and regulating the relationships between nature and the human ego. In other words, to properly develop the concept of environmental ethics, living humans must be completely liberated from their 'egos,' stop believing that they are 'masters of the universe', stop acting in an anthropocentric way, and all participants - including those who remain silent and those who have not yet lived - should consider their rights and respect them (Kriton Curi 2009, 83-84).

Ecosophy is ecology philosophy or ecological wisdom. This philosophical movement was initiated in 1972 by the Sweden Ame Næss. Næss defines Ecosophy as the philosophy of ecological harmony and balance. In other words, obvious prescriptiveness, including rules, precautions, assumptions, value priority statements, the current state of our universe (*state of affairs*); defined as a type of mindset or wisdom (Næss 1973). French post-Marxist Felix Guattari's main innovation was redefining Ecosophy as the approach that the human mind, cultural environment, and ecological environment should be evaluated holistically without isolating them from each other. Guattari emphasizes the need to consider environmental problems and politics, aesthetics, economy, and social situations. He argues that the solution to the ecological crisis that humans are gradually sinking into is a social, cultural, and political but literally "real revolution" (Guattari 1992).

Today's culture constantly debates environmental concerns, emphasizing concern about the loss of natural resources, various types of life, and, as a result, the human species on the globe; this is primarily to do with owning up to the increased action of artificial environmental devaluation. Thus, the environmental problem is the outcome of our society interfering with nature without regard for the future.

Guattari said that individual and collective human life is developing in the direction of the constant destruction of our planet. From this point of view, contemporary environmental problems result from human behavior, and there is no intentional projection of time that affects the future of nature. Guattari aims to connect the concepts of nature and culture in a rational and heterogeneous way, and it becomes vital to combine nature and the environment with human beings. According to Guattari, we live in a world, experiencing a rapid spurt of technological and scientific mutations, which can be seen in the contemporary era. We are experiencing an environmental disaster and a political, social, and cultural revolution. Therefore, the Guattari ecosystem concept seeks solutions and actions for the environmental problems that we face daily (Guattari 2009).

> "Without modifications to the social and material environment, there can be no change in mentalities. Here, we are in the presence of a circle that leads me to postulate the necessity of founding an "ecosophy" that would link environmental ecology to social ecology and to mental ecology." (Guattari 1992)

Future ecological awareness should not be satisfied with the courtesy of environmental causes but should also focus on destroying the environment in the social and mental realms. Therefore, it is necessary to understand the current formation of environmental subjects inserted in ecological practice and environmental action to find a solution to the destruction caused by man. Therefore, the material environment will only have an imaginary scale without changing ideological concepts and collective habits. For Guattari, ecology is a mode of practice and speculation. Ethics, politics, and aesthetics are not a discipline but a simple and effective update of the old concepts of humanity, society, and the environment (Guattari 2009).

The ecosophy proposed by Guattari is based on three ecologies: environment, social relations, and human subjectivity (psychology). He proposes our understanding as part of our way of life, learning and responding to environmental problems. From this, it can be understood that environmental ecology has the characteristics of natural occurrence. Psychological ecosophy is related to the concept of human performance and benefit as environmental awareness. In this way, social ecology takes human sociality as its principle and seeks collective solutions to environmental problems locally and globally. Ecosophy presents some fundamental aspects, revealing that we must understand the relationship between environmental awareness, ensure the continuity of the world we live in, protect nature and living beings. Understandably, ecosophy is not just a reflection on ecology, nature, and human subjectivity; it is an exploration of concrete actions, considering the interaction between human beings and the environment. In this way, ecosophy has stimulated a wide range of environmental awareness to harness the potential of learning and knowledge to understand what our planet needs and examine our behavior (Guattari 2009).

As a result of everyday interactions with the environment, the ecological structure reflects the readable and interpretable communication memories. Space has its unique atmosphere and creates all living / non-living identities. It is formed as a mixture of local and individual cultures. Space’s identity is formed by the interactions, memories, and experiences of all beings that make up the metabolism in that space. Feelings and memories of the place provide the formation of the cultural habits, exchanges, and *metabolites* of that space. These compounds defend living things against pathogens, and their interactions are means of survival in the evolutionary process.

ECOLOGY OF GUATTARI (2009)	SENSE
Environmental	Catastrophes Development or evolution Human interventions Nature
Mental	Create new thoughts and actions Relation of the subject with the body Understand the purpose of the work developed Understand the subject's purpose in the environment
Social	Understanding human relationships Ways of belonging to the social environment Ways to collectively correct the environment in which they live in society

Table 2.1: Understanding the characteristics of Ecosophy[5]

In the research, the interaction amid all these compounds of the space is intended to be conceptualized. Donna Haraway's speculative fabulation, the definition of Chthulucene, was taken as the basis for conceptualizing equal interaction processes. By examining both the Anthropocene and the Capitalocene, Haraway suggests that the complex processes of human interactions can be expressed and conceptualized in a different term.

> "climb the mountains and get their good tidings. nature's peace will flow into you as sunshine flows into trees. the winds will blow their own freshness into you, and the storms their energy, while cares will drop away from you like the leaves of autumn." (Muir 1901, 56).

[5] Source: Cavalcante, Kellison Lima., *"The Ecosophy of Felix Guattari: an analysis of philosophy for environmental issues"*, International Journal of Humanities and Social Science Invention (IJHSSI), pp.25-28, December 2018.

3. THE ERAS

3.1. ANTHROPOCENE

Now, the Earth seems to be on the periphery of a new extinction because of humanity and its behavioral practices. According to scientists, the world is heading towards the sixth mass extinction which is named the Holocene extinction (Ripple WJ, Wolf C, Newsome TM, Galetti M, Alamgir M, Crist E, Mahmoud MI 2017). In this subheading, the primary conceptualization of the reasons for this extinction is defined as Anthropocene.

The term Anthropocene keeps a productive distance from the present human conceit of 'Man.' ‘Man' does not refer to humans, but to a specific type of being invented by Enlightenment philosophy and put into action through industrialization, state regulation, and other means. It is this 'Man' who can be blamed for the current *state of affairs*. Nature was intended to be conquered by 'Man.' Building that recognition into the word Anthropocene may perhaps – at least at this point, when the phrase is not yet widely used – bring some thinking to the paradox of seeking solutions from the exact creature that generated all of the issues in the first place. Anthropocene also includes an intriguing contradiction that can be exploited. The Anthropocene retains potential precisely because it is still so diverse and inchoate. This is the Anthropocene's promise: critical thinking (Donna Haraway, Noboru Ishikawa, Scott F. Gilbert, Kenneth Olwig, Anna L. Tsing, Nils Bubandt 2016).

Anthropocene remains a controversial topic, yet the term has attracted public attention and precipitated passionate arguments about the human and nature relation. However, scholars criticize the term by arguing Anthropocene preserves long-standing delusions about this relationship. Anthropocene is a concentrated world that creates its own Enlightenment. In the continuation of the thesis, Anthropocene criticisms are given by critical thinking practice, which may be embraced as a gift of the Anthropocene. While criticizing this world, using a way of thinking taught by Anthropocene, would only be the dilemma of such Great Acceleration. Criticism provides awareness of current potentials, problems, and possibilities. This awareness enables the first steps to be taken for the imagination of a more equal world.

In the early 1980s, an ecologist and expert in freshwater diatoms from the University of Michigan, Eugene Stoermer (2012), introduced the term to refer to growing evidence for the transformative effects of human activities on the Earth. In 2000 atmospheric chemist Paul Crutzen joined Stoermer's conceptualization for the term Anthropocene. They both proposed utilizing a recent geological term for a modern age, and it had been replacing the Holocene, which dated from the conclusion of the last ice age (Haraway 2016, 44).

The concept of the Anthropocene, proposed by Paul Crutzen and Eugene Stoermer in 2000, comes from a durable position. The biosphere and geological time have been fundamentally changed by human activities. Therefore, a new conceptualization of geological time is needed, including "human beings" as "major geological forces": This is a bold proposal because it is one of the frontiers of basic knowledge that transcends modernity to propose human beings as geological agents. Nature/society dualism is precisely at the core of Anthropocene arguments. New ideas appear in many interim steps. On the way to the new complex, there are many conceptual discussions. No other concept based on historical changes has such a significant influence on the reach of green thinking/nature perspective as Anthropocene (Moore 2016).

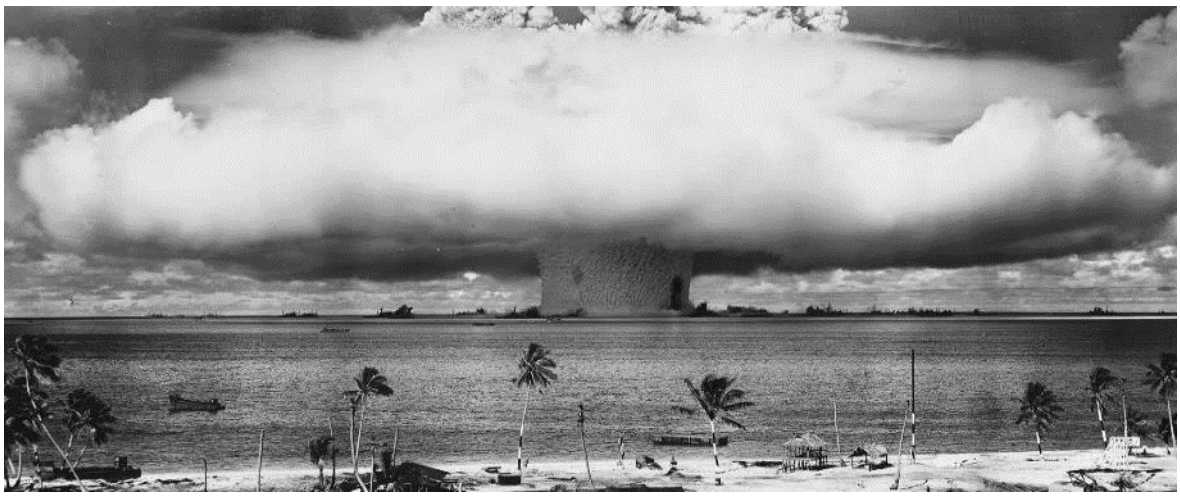


Figure 3.1: Anthropocene[6]

[6] Source: https://www.nationalgeographic.org/encyclopedia/anthropocene/ Retrieved: 14.05.2020

The Anthropocene concept intertwines human and nature history, even though the "why" and "how" are unclear and controversial. This obscurity certainly explains the popularity of this concept. Just like globalization in the 1990s, the Anthropocene has become a buzzword that means everything to everyone. However, due to early developments in environmental history, the Anthropocene became apparent as an argument: "human behavior" plus "nature" is equivalent to "planetary crisis" (Dipesh Chakrabarty 2009). Thus, expression history as a collection of the relationship between humankind and nature has become prominent. The Anthropocene is the era, which human have profoundly reshaped the planet and biodiversity.

The Anthropocene concept, which was put forward by Crutzen and Stoermer, led to the re-questioning of the concept of nature in geography and then in philosophy. The term mainly has the potential to change the perception of the naturalist approach in architecture. Anthropocene, which means that human has become an absolute impressive power on the world they live in and that a system that can be defined as nature cannot be defined except for human influence, extends to a perspective that extends to the blurred borders between human and nature, the freedom of human on earth and even the sustainability of modern human (Can Boyacıoğlu 2017). To realize the potential of the Anthropocene, it needs to be criticized substantially.

The mind-centered Anthropocene brought about the Great Acceleration, including the most advanced level of human development in history. Great Acceleration refers to a term which is has been used first time just about a decade ago, points out a significant moment in both human and Earth history. It specifies the massive growth in human activity in the fields such as economy, energy use, resource use, transportation, communication, etc. which began about the middle of the twentieth century and has lasted to the present. Historians were among the first to notice it, such as John McNeill, who reported the phenomenon in his book Something New Under the Sun. The Earth System was later discovered by scientists who were attempting to chronicle the development of human endeavor and its impact on the planetary environment (Will Steffen, Wendy Broadgate, Lisa Deutsch, Owen Gaffney, Cornelia Ludwig, 2015).

They brought the Earth System projection to the socioeconomic knowledge already widely known to historians. Graphically, the Great Acceleration is depicted in units of 12 graphs;

one set of signs for the human organization and the opposite for the shape and functioning of the Earth System (see Figure 3.2, Figure 3.3). The graphs begin at 1750, to seize the start of the commercial revolution and next developments, and retain to 2010, which is the closing time of complete datasets we have (Steffen, Broadgate, Deutsch, Gaffney, Ludwig, 2015).

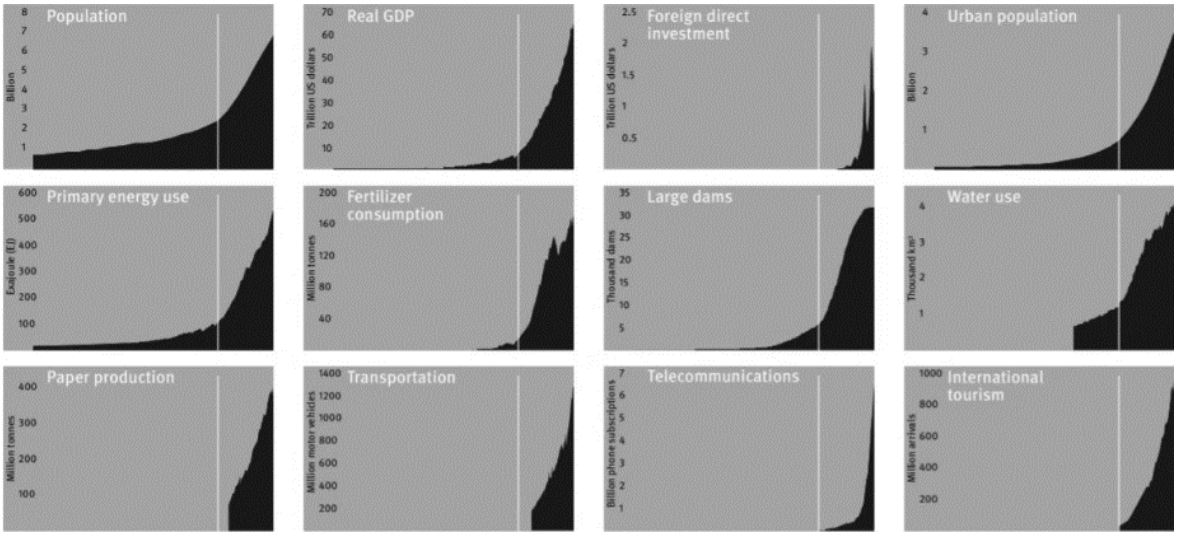


Figure 3.2: Trends from 1750 to 2010 in globally aggregated indicators for socio-economic development[7]

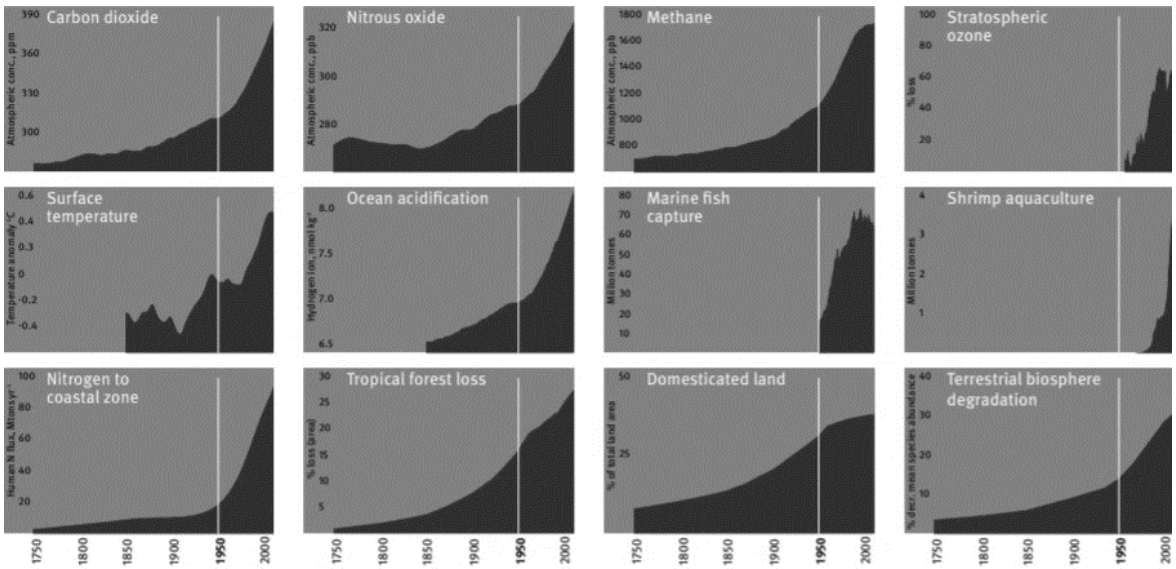


Figure 3.3: Trends from 1750 to 2010 in indicators for the structure and functioning of the Earth System[7]

[7] Source: https://green-alliance.org.uk/resources/Inside_Track_35.pdf Retrieved: 13.04.2021

The graphs are exceptional in showing simply how briskly and the way abundant human enterprise modified once the Second World War. it's conjointly fascinating in this they show the robust coupling between human activities and changes within the structure and functioning of the Earth System. This data, together with much more, has prompted the suggestion that human activities have pushed the world into a brand-new earth science epoch: the Anthropocene. The term continues to be informal, and whether or not it's formalized is within the hands of the geological community. The development of the Great Acceleration brings out more vital ideas, however, two essential notions stand out (Steffen, Broadgate, Deutsch, Gaffney, Ludwig, 2015).

First, there has been a massive expansion in human enterprise connectedness, as evidenced by measures such as foreign direct investment, telecommunications, and international tourism. After 1950, everything accelerates dramatically. Since the Second World War, these and other features of the globalization process have greased the wheels of the global economic machinery, resulting in rapid increases in energy and resource demand.

Second, the Earth is a single interconnected system in which changes in one characteristic or process, as seen by the graphs, influence many other processes. It is best understood via the lens of complex systems theory, in which the system can exist in a variety of well-defined states. Furthermore, at the global scale, the Earth System exhibits emergent behaviors that cannot be predicted or comprehended merely by aggregating constituent properties at lesser scales.

A notable example is global atmospheric circulation. Combining all 24 graphs demonstrates how, from the mid-twentieth century, the global socioeconomic system and the biophysical Earth System have increasingly evolved in lockstep. It's becoming increasingly difficult to tell the difference between global socioeconomic change and global environmental change; we just have 'global change' (for a better understanding of the global approach of the thesis, please see section 3.4. From Global To Chôra).

The Great Acceleration reveals that Anthropocene is no longer sufficient for the continuity of life. Anthropocene refers to an epoch in which human industry has surpassed, if not beyond, geological processes, and in which humans, in their quest to master nature, have

accidentally become a primary cause in its destruction (Crutzen & Stoermer 2000; Will Steffen et al. 2011). The tragedy of the Anthropocene occurs here. This tragedy, however, bears an unusual, even psychotic promise: the hope of scientific regeneration and Enlightenment. Nature is no longer what mainstream science anticipated it to be in the Anthropocene. And if the concept of a pure nature-noumenon has died in the Anthropocene and been replaced by natural worlds inextricably linked to human worlds, then people cannot be what classical anthropology and human sciences thought they were (Haraway, Ishikawa, Gilbert, Olwig, Tsing, Bubandt 2016, 535).

For McBrien, The "Anthropocene" uproots the beginnings of the modern emergency onto humans as species instead of as capital. It strengthens what capital needs to accept of itself: that human "nature," not capital, has accelerated today's planetary flimsiness. The Anthropocene says "humanity" put the soil beneath its control, that it seems either spare or annihilate it—yet it too says the unintended results of this control as it was quickened our feebleness over Earth's unavoidable exact retribution. We have mixed up who "we" are (as a few kinds of undifferentiated human mass) from what "we" perform through the capital. We have mixed up a chronicled condition of our financial organization for an intrinsic perspective of the human being. Planetary catastrophism has ended up the belief system of capitalism, and this generates catastrophe (McBrien 2016).

One of the central problematics of the Anthropocenic world is that; human beings, as biological entities, try to consider their development by ignoring the other beings in the environment they share. Thus, despite being in an essentially natural environment, they exempt themselves from interacting with other biological entities. In a world defined by the negative returns of this attitude, humans threaten the existence of their species and the sustainability of the entire world's existence.

However, Haraway argues in a powerful, even poetic way. For Haraway, the problem of the Anthropocene is fundamentally a question of thinking about the place of human beings in the network of life: "How to think is important." To think about how chaotic life develops in an "always cooperative" way. Therefore, the Anthropocene is not just lousy thinking, a narrative about "humans created by ourselves, historical man-making machines." (Moore 2016). Haraway has some opposing propositions about Anthropocene (Haraway 2016, 49):

1. She affirms that Anthropocene is a myth. Moreover, it is not a good story, as it is clear that humanity has failed in this myth, where the main actor is human.
2. She states that humans as a biological species cannot make history.
3. She stated that the use of tools by humans, who are still a species, cannot write history again. According to her, this history is again the product of an understanding that puts people in the center.
4. She describes that biological species will live and die, and they will not make history. On this thought, historiography should include stories of events and places.
5. She specifies that the definition of human being acted by the Anthropocene is slow and prone to bureaucracy. According to her, human needs more subtle forms of action and stories. The Anthropocene is based on ancient, limited, utilitarian individualism.

Among Haraway's oppositions, it is thought that these two propositions are the base ideas of her new concept search:

6. The term Anthropocene is prevalent in evolutionary theories whose symbiotic view has proven to be limited.
7. The Anthropocene indicates class discrimination. It is a term easily defined and used by the wealthy class and intellectuals; it has no idiomatic meaning for indigenous peoples.

In her criticisms, Haraway does not say that the Anthropocene discourse is entirely wrong. Instead, she argues that the term does not open up a perspective for coexistence with both the present, existing assets (including the so-called wildlings, which is the discourse of colonialism) and the new worlds and dimensions she predicts will exist in the future. She thinks that this approach of Anthropocene is again the way of human-centered thinking. Haraway claims that a more integrated, earthly imagination will be more elevatory, inclusive, and liberating by leaving human-oriented approaches behind. She invites humans to welcome the limitation of their populations, economies, and habitats, to step back and act more unassumingly (Haraway 2016, 50).

The Anthropocene has sounded like a wake-up call. Nevertheless, it cannot explain how these shocking changes occurred. Dominant Anthropocene views often surround capitalism, power and class, Anthropocentrism, the dualistic framework of "nature" and "society," and the role of the state and empire - all of these themes. Nowadays, Anthropocene is picked up in well-known and logical talk within the setting of omnipresent critical endeavors to discover ways of talking around, theorizing, modeling, and managing the transformation. It may be an influential positive criticism circle inciting change-of-state in political and environmental talks (Haraway 2016, 45). Altering “Anthropocene” with a new term that focuses on the consequences of human behaviors and their impacts on the Earth, may open another perception to think about the future.

3.2. CAPITALOCENE

Capitalism can be thought of as human organizations (classes, empires, markets) that create the environment by historical inferiority of the network of life. From this perspective, capitalism is a world-ecology with added capital accumulation, the pursuit of power, and natural co-production in continuous historical configuration. As the origin of modernity, the emphasis on the Industrial Revolution is believed to come from a historical approach that emphasizes environmental consequences and excludes the geography of capital and power. The origin of the crisis, inseparable but distinct from the accumulation of capital and the stability of the biosphere today, can be found in a series of landscape, class, territorial and technological changes that occurred in the three centuries after 1450 (Moore 2016).

Figure 3.4: Capitolocene[8]

[8] Source: https://www.transcend.org/tms/2015/11/anthropocene-or-capitalocene/ Retrieved: 14.05.2020

Capitalocene does not represent capitalism as an economic and social system. Instead, Capitalocene means capitalism as a way of organizing nature. There can be many other terms and definitions proposed to clear the uncertain points of Anthropocene, such as Anthrobscene (Parikka 2014), Econocene (Norgaard 2013), Technocene (Hornborg 2015), Misanthropocene (Patel 2013), Manthropocene (Raworth 2014). All the proposals seem pragmatic, but the "era of capital" does not seize the basic historical patterns of modern world history and the era of capitalism as a world-ecology of power, capital, and nature. Coal and steam engines do not determine history. Because it must be included the long 16th and 17th centuries of the current era and the considerable changes in commodities, even thinking about the capital world when considering the transformation that formed Capitalocene (Moore 2016).

From another perspective of Capitalocene, Justin McBrien has been examined. McBrien concurs that humanity is lost within the Capitalocene, highlighting capitalism's drive toward termination in a world-ecological sense. Termination, McBrien contends, is more than a natural preparation endured by other species, and it signifies the "extinguishing of societies and languages," genocide, and a range of biospheric changes caught on as anthropogenic. He illustrates that "accumulation by extinction" has been essential to capitalism from the starting. The Capitalocene, in this see, is additionally a Necrocene: "The collection of capital is the amassing of potential extinction—a potential progressively actuated in later decades." (McBrien 2016).

The contributors to the Anthropocene or Capitalocene both seek to transcend criticism. They all defend that reconstruction points to a new humanized way of thinking and humanized nature (Moore 2016). Nevertheless, because the word is already well entrenched and seems less controversial than the Capitalocene, the term Anthropocene will continue to be needed. In case if one word is required for these times, it must be the Capitalocene, undoubtedly (Haraway 2016).

In criticizing Capitalocene, Haraway expresses humanity's dark attachment to the lure of progress. The dark side of this commitment comes from the Capitalocene's belief that there is no other way to be reborn, re-imagine, and live again. She expresses the existence of collectives with the practice of imagination, resistance, revolt, reparation, and the possibility

of seeking ways to re-create, re-imagine, re-live and reconnect with each other in the well-being of different species. However, she thinks that progress is impossible unless she is fascinated by the belief/non-belief discourse and does not realize the necessity of established disorder (Haraway 2016, 50-51).

3.3. CHTHULUCENE: ORGANIZED CHAOS & CHAOTIC ORDER

> "...we have always been symbionts—genetically, developmentally, anatomically, physiologically, neurologically, ecologically." (Scott Gilbert, 2012).

First, the essential questions, that are asked in the context of Chthuluecene, refer to humanity and how it organizes the life network or the reverse. Human organizations are beyond humanity rather than sociality, just like Haraway's perspective about Capitolocene. The human organization is thought of as a complete and changing porous structure in the network of life.

Second, the questions that may be more important than natural "degradation" can be begun to be asked. There is no doubt that capitalism has imposed a ruthless mode of violence against nature, including humans. Nevertheless, capitalism still works because violence is part of a larger strategy to cultivate nature. Thus, the question contains but transcends the natural degradation argument: how do integrated relations make nature work? How does the specific combination of human activities and superhuman activities exert or limit the endless accumulation of capital? At this point, to conceptualize all these arguments, Haraway's Chthulucene concept gains importance. It is thought that it should aim for a new thought about human nature in the live network.

> “Arising from Chaos, Gaia was and is a powerful intrusive force, in no one’s pocket, no one’s hope for salvation, capable of provoking the late twentieth century’s best autopoietic complex systems thinking that led to recognizing the devastation caused by anthropogenic processes of the last few centuries.”. (Haraway 2016, 51)

Chthulucene is an understanding that can be perceived as simple as it is complex. Chthulucene is the imagination of a world that can be fully organized on the plane of equality. It can be defined as an approach in which human is no longer a master by moving

away from their arrogance (it should not be forgotten that human is never a master here, accepting this in their own imagination and inflicting damage to the world that is difficult to take back), in a spherical sense, it can be defined as an approach in which human can continue their existence by taking into account the wishes and needs of other users with whom they share the same living space.

Chthulucene can be perceived as a complex or maybe chaotic approach to be understood and implemented due to the complex interaction processes of diverse components included. Chthulecene should be considered as a complex and adaptive system fiction. Complex and chaotic systems are seen as catastrophic for human, so these systems can be pushed into the background in thought, their importance and necessity may not be clearly understood. Considering this concern, to understand the concept of Chthulucene; chaos and order opposition are examined regarding the binary thinking method by the Sausserrean approach.

Binary opposition is when two theoretical opposites in language and thought are precisely defined and opposed. Binary opposition is an essential concept of structuralism that sees such distinctions as the basis for language and thought. In structuralism, a dichotomy is a fundamental regulator of human philosophy, culture, and language (Sausserre, 1916).

In order to conceptualize the dramatic aspect of the understanding of chaotic order to be created by the concept of Chthulucene, the relationship of chaos and order is considered. The sense of order in the Anthropocenic world develops in a built environment. Accordingly, in the Anthropocenic world, there has been a tendency to introduce an artificial intervention to mention an order. The fear of chaos created by this trend brings life to a standstill in times of panic created by extraordinary situations such as climate change and pandemics. At this point, the concept of chaos is researched. The fact that the meaning of chaos depends on the existence of order indicates the necessity of adaptation to chaos on the chaotic transcendental basis it creates.

James Gleick mentions that the word "chaos," means "emptiness, gap, no boundary" in Greek. Theoretical Physicist Johannes Hans Daniel Jensen expresses chaos as "the erratic and unpredictable behavior of complex, nonlinear dynamical systems" (Gleick 1987).

In the sense of chaos, the disorder does not simply mean mess or confusion. Defining disorder in this way makes both chaos and order, which is the opposite of chaos, more inexplicable. We observe practical situations and events in daily life that seem to have no relation, giving the impression of coincidence. When these events are considered from a different perspective, they are part of an enormous order that characterizes the transition from classical science to chaos (Gleick 1987).

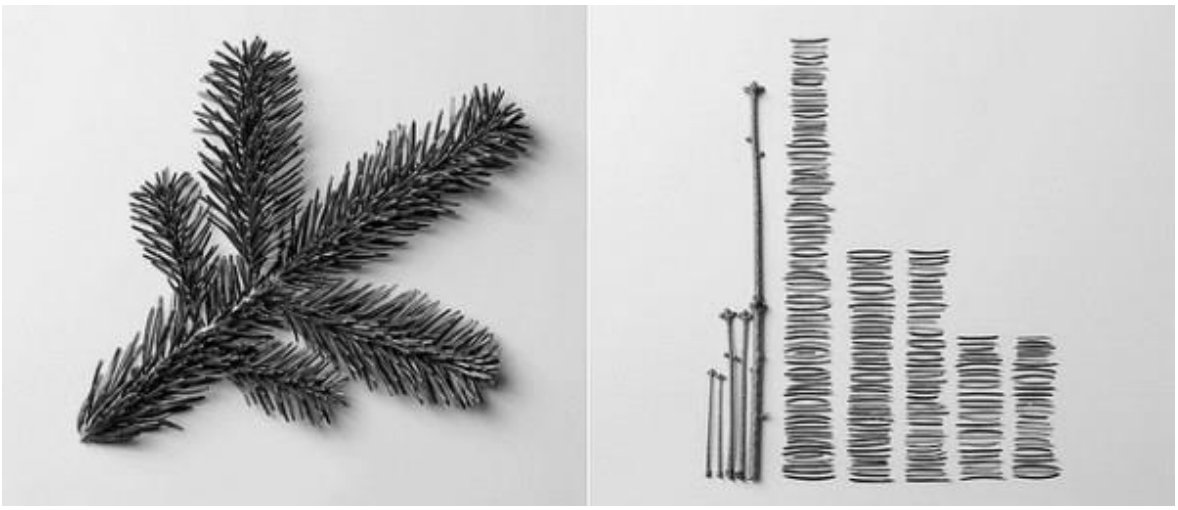
In chaos theory, it is argued that there is a chaotic structure related to nature and events occurring in nature; additionally, there is an interrelated causality (indeterminism) and complexity. The chaos theory expresses this situation that nature, which is supposed to have a stable and clockwork structure, actually has the order of irregularities (Gleick 1987).

One critical study in developing the perception of chaos is a calculation coincidentally put forward by Meteorologist Edward Lorenz in the 1960s. Thinking that it would not make a difference, Lorenz rounded the temperature values that he had chosen by chance at such a low rate that even the most sensitive thermometer could not detect it. While waiting for it to make no difference, he saw that completely different functions emerged as a result. Lorenz's comment from this result is that it is impossible to make an accurate and reliable long-term forecast due to the chaotic behavior of the variables. At the end of the Lorenz experiment, he tried to explain the "chaos theory" by putting forward two fundamental features of chaotic systems that appear irregular from the outside but have an internal order (Gleick 1987).

Firstly, the sensitive dependence on the initial state is called the *butterfly effect*. It is explained as "the waves in the air with the flapping of a butterfly's wings in Damascus, causing a hurricane on the other side of the world after a while." Due to the butterfly effect, a very small, seemingly insignificant, and often overlooked effect in a complex system can create unexpected significant results. Lorenz expressed this effect; discovered it while entering weather data into the computer. He rounded up numeric data that would be considered insignificant. However, when comparing the effects of these roundings, which represent minimal values, with the actual values, huge differences emerged. Secondly, deterministic means that many world events have a chaotic structure, and all chaotic structures have a regularity within themselves. In other words, the disorder has an order in itself. This chaotic structure, which does not conform to the deterministic understanding of

the classical science paradigm, also shows a dynamic process feature. Lorenz tried to explain the "chaos theory" by putting forward two fundamental features of chaotic systems that appear irregular from the outside but have an internal order (Gleick 1987).

Chaos, *not being random*, means that many events in the world have a chaotic structuring, and all chaotic structures have a regularity within themselves. In this context, chaos spontaneously develops a Chthulucenic perception. Chaos defines processes that cannot be based on the causality understanding of classical science and are called dynamic systems, destroying determinism. To shape the definition of chaos and order within the context, the deconstruction works of the Swiss artist Ursus Wehrli and the questions: How does a sudden, unpredictable effect occur against the environment that such a dynamic structure belongs to affect this dynamic structure of chaos? What kind of transformations are there? What are the chaos and intervention relationships? were examined (please see: Figure 3.5).



This is chaos. This is order.

Figure 3.5: The Art of Clean Up, Ursus Wehrli, 2013[9]

At the left visual, Wehrli puts a regular pine branch and defines it as “chaos”. The questioning starts here; why a regular tree branch represents chaos? In this artwork; the tree branch is understood as a minimal representation of the complex system unity of nature. It is harmonious, neat, working in its own circular process, as we know from the researches

[9] Source: https://www.brainpickings.org/2013/03/28/the-art-of-cleanup-ursus-wehrli/ Retrieved: 14.06.2020

that are completed until now, every single unit of the branch is meaningful and has a duty in this circular process. At the right visual the pine branch is interfered with by probably a human, every single unit has been arranged in a scheme which is meaningful only for the organizer. Wehrli names this visual as “order” because it is the organization by the organizer’s perception. In fact, the real chaos is defined at the right visual. All the units are detached and their connections with their duties are plucked irrelevantly. The productivity of the units is blocked, they are no longer functional anymore that bringing the actual chaos.

In my interpretation, Wehrli tries to draw attention to the tendency of intervention and dysfunctional organizations of the Anthropocene. Organizations become dysfunctional as long as human keeps their position as a mastermind. This creates a fragile living environment for human. With little changes in this environment, with the change of a little component, humanity faces a danger of extinction. Currently, humanity is under the effect of COVID-19 pandemic which limits human actions as actors of an ordinary science fiction movie. The human is facing a problem that has an immediate impact on the chaos that is taking place.

Mandatory isolation has already fundamentally changed the way of life. In addition, objects in nature have the essential order in their environments that we call dispersed. When we remove these objects from their natural environment and evaluate them sterilely, specific stress occurs. Therefore, this assessment will not be very objective when objects are detached from their original contexts. The data that transformations of movements/behavioral practices can produce in this compulsory isolation environment is limited. It does not reflect the true self of humans.

Like isolation itself, there are some unexpected or re-experienced effects. First of all, it has changed the forms of bodily communication in many ways. A virtual network has been formed in the flow of information between individuals in online systems transitioned at a mandatory speed. A new screen layer has been added to mutual communication, along with writing.

Figure 3.6: Wassily Kandinsky "Sky Blue"[10]

[10] Source: http://www.demilked.com/tidying-up-art-ursus-wehrli/ Retrieved: 16.06.2020

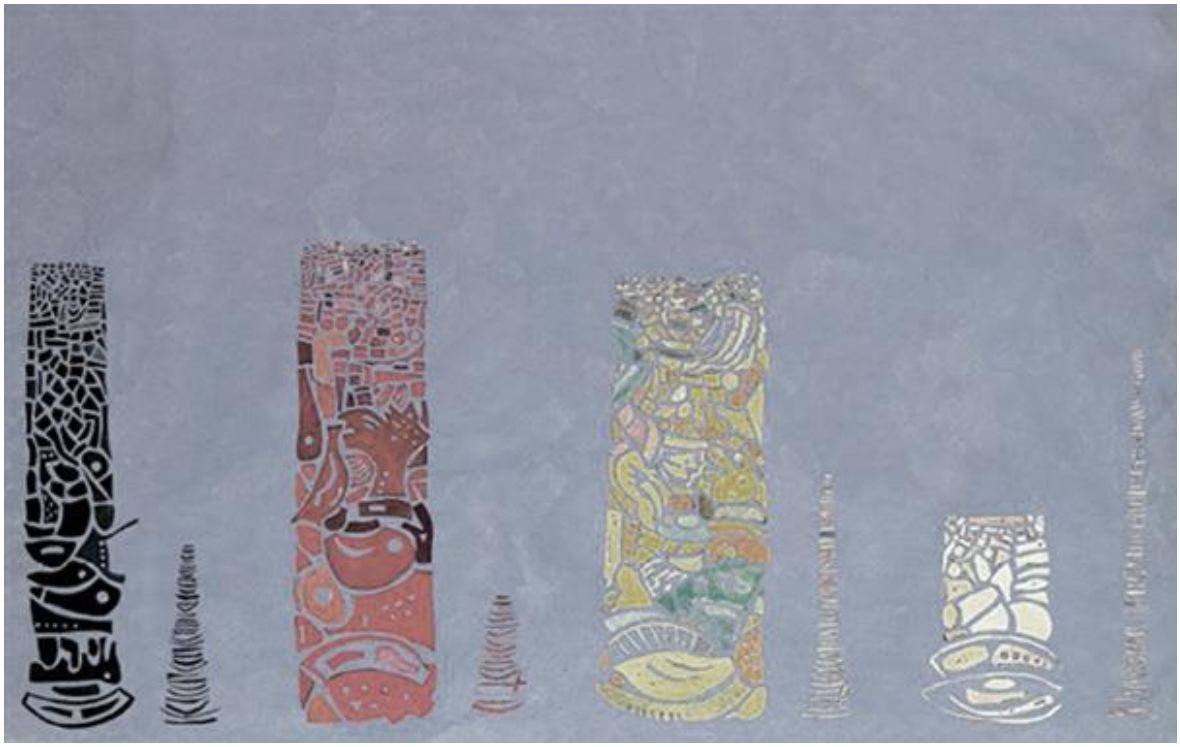


Figure 3.7: The deconstruction of Wassily Kandinsky "Sky Blue" by Ursus Wehrli[11]

Subsequently, another reconstruction of the Ursus Wehrli is examined. Wehrli rearranged Wassily Kandinsky's "Sky Blue" painting in 2013. This study also enables to way of thinking and feel especially about isolation.

The mode of domination of the pandemic is similar to the idea of Hôpital Général (Michel Foucault 1965). Human, similar to Hôpital Général, is divided into several disadvantaged groups that are tried to be "disciplined." The elderly over the age of 65 and individuals with chronic respiratory diseases are among these disadvantaged groups. The pandemic has targeted these disadvantaged groups. Hôpital Général here is the living space of individuals. The call made by the countries' health authorities: "apply your personal quarantine"[12] is a kind of call for everyone to create their isolation area, prison. The virus builds its prisons, this time, on personal spaces. This 'temporary' order seems to provide space for the

[11] Source: http://www.demilked.com/tidying-up-art-ursus-wehrli/ Retrieved: 16.06.2020

[12] Source: https://www.who.int/docs/default-source/searo/whe/coronavirus19/the-guideline-for-home-quarantine---quarantine-in-non-health-care-settings-is-intended-for-anyone-who-believes-they-have-been-exposed-to-covid-19-and-are-required-to-be-home-quarantined-to-prevent-community-trans.pdf?sfvrsn=1bc12565_4 Retrieved: 20.03.2021

mechanisms developed in an individual-centered manner in the Anthropocene Age. However, with the sudden collapse of mutual communication networks, conventional communication forms carried out over the virtual environment are far from the necessary efficiency.

As Bruno Latour calls in his text Down to Earth, the world is on the road, but it has lost its course due to the ecological crisis in which human is the main actor. The way it interacts with the natural environment it lives in has brought humanity to the brink of extinction. For example, humans have polluted the air so much that the particles can stay in the air because of the new air density. In the congested world, we live in, the basic necessity for the survival of human beings is no longer an environment where they can breathe (Latour 2018). Perhaps the disciplinary mechanism of the pandemic is for this to be understood.

Regulatory processes such as quarantine and curfews that human is experiencing now can create absolute chaos by detaching human from their environment. Human is positioned far beyond the practices they are used to, they have to stay home. They are exposed to scenarios and speculations that become prominent in different ways every day about how long this situation will last. The strategies human needs to develop to survive may require them to reflect on these speculations.

Individuals who can survive in this chaotic environment seem to gain a competitive advantage. Otherwise, they will not be able to adapt to constantly changing conditions. In today's world, the ability of individuals to live in a stable and straightforward environment seems to be considerably diminished to gain a competitive advantage.

Instead of seeking order, human should try to learn about the existing organizations beyond human perceptions. To understand this, human should not need to return to the survival mood as observed in COVID-19 pandemic. In order to envision the future, it is necessary to embrace the change by accepting that it is part of the process. As long as the change is rejected, it is not possible to move on to the adaptation level. Once the change is accepted, the other organizations in the same environment are understood, human can begin to understand the change they are in and internalize the processes needed to adapt to change.

By analyzing all these disadvantageous situations, can we imagine a future where borders are reinterpreted by intertwining all species as Haraway suggested in Chthulucene?

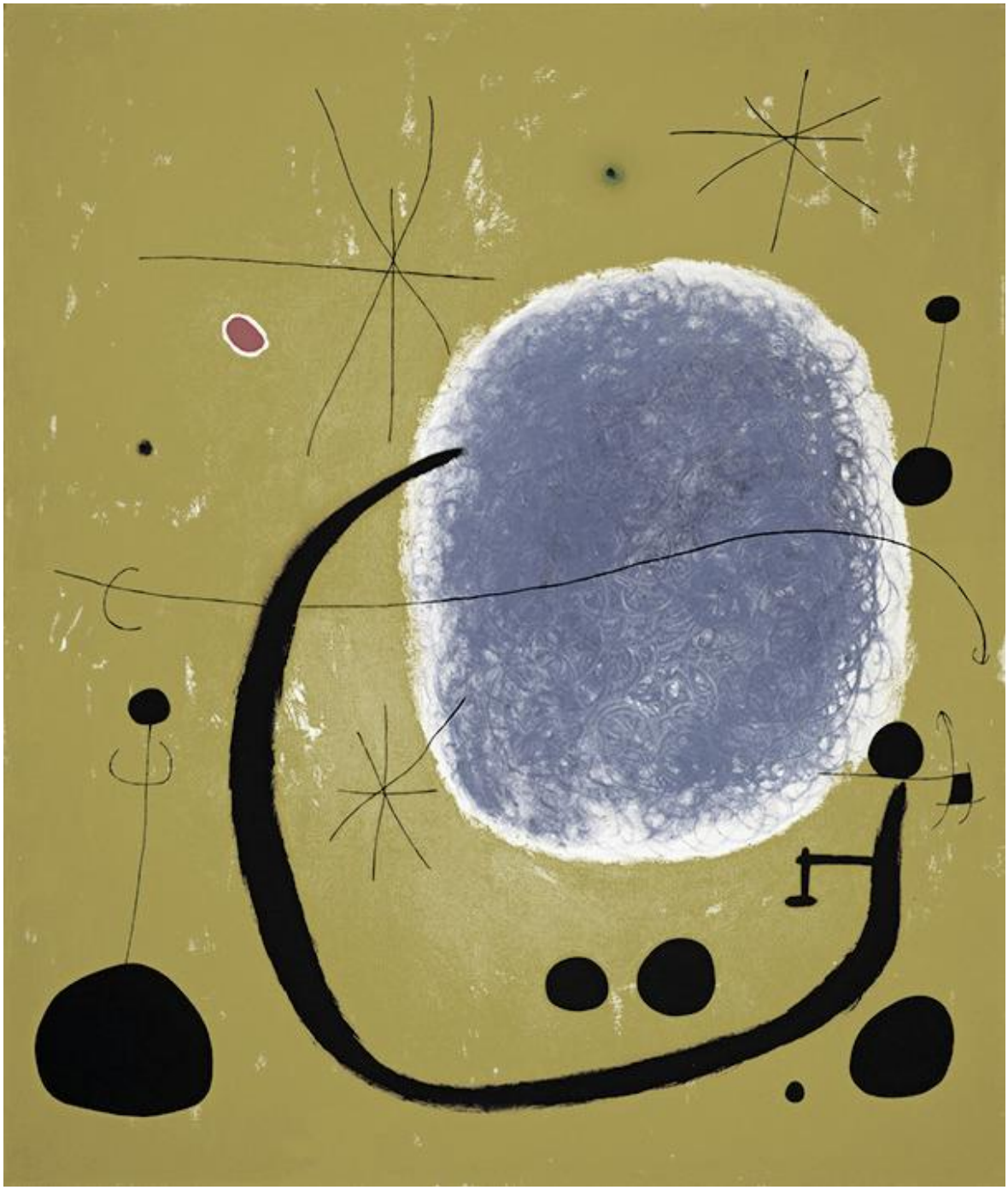


Figure 3.8: Joan Miró "The Gold of the Azure"[13]

[13] Source: http://www.demilked.com/tidying-up-art-ursus-wehrli/ Retrieved: 16.06.2020

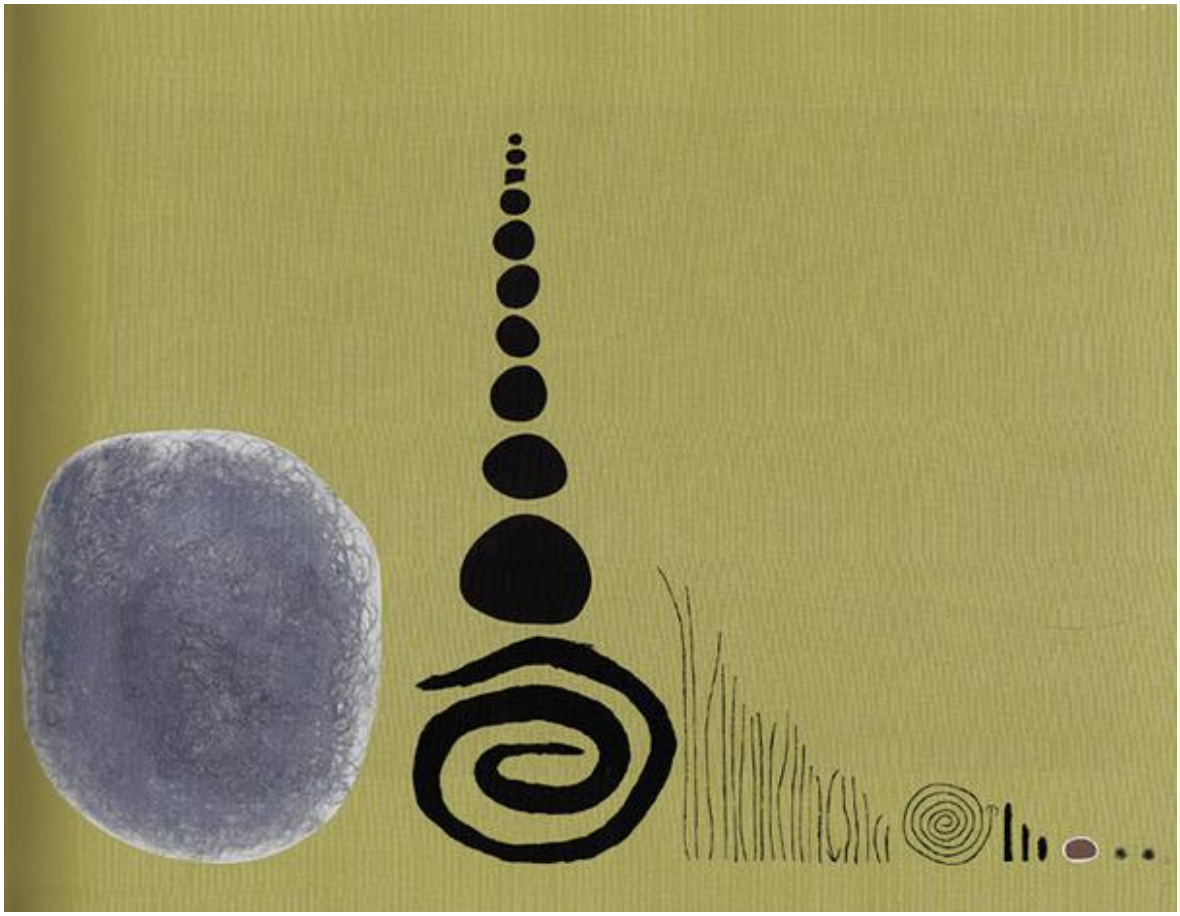


Figure 3.9: The deconstruction of Joan Miró "The Gold of the Azure" by Ursus Wehrli[14]

Human has to criticize the theories for the future. Human has to firstly imagine a world in which they can embrace instant/continuous changes and make it a part of their life cycle. While imagining this world, human must first criticize the environment they are in. Today, even the attempt to criticize sees a negative reaction in the existing "order". Hence, the critics are true optimists, speculating and asking questions on many issues that can be reproduced, such as the near/distant future. Ursus Wehrli makes this critique when deconstructing Joan Miró's painting "The Gold of the Azure". He questions whether it is an order or not in the context of intervention addiction which human define as order.

> "...it's the critics that drive improvement. It's the critics who are the true optimists." (Jaron Lanier, 2020)

> "Tegenspraak brengt ounce verder." (Rudy Koopmans, 1973)

[14] Source: http://www.demilked.com/tidying-up-art-ursus-wehrli/ Retrieved: 16.06.2020

By the increasing acceleration of the production and criticism speed of information, humans' interactions are problematized. The research advanced on how a future, which embraces instant/continuous changes, will be formed, based on the idea that the spatialization and the environment that human develop by their communicative actions. For this perspective, conceptualization provides vision while progressing of a *better* future idea. Haraway defines her future predictions by the neologies. To conceptualize this world, Haraway's neology, Chthulucene has been researched.

Haraway is a leading scholar of contemporary ecofeminism, reflecting on the post-humanist and new materialism movements who published the Cyborg Manifesto. Her work criticizes Anthropocentrism, or Human Age, the practices of Anthropocentrism, the Age of Man, emphasizing the *self-organizing potential of non-human processes*. She also rethinks ethical resources by examining the dissonant relationships between these inhuman processes and cultural practices. Besides all these, she is a versatile theorist working on cyborg anthropology, gender, techno-progressivism, feminist technoscience, human-animal relations, political consciousness.[15]

Figure 3.10: Donna Jeanne Haraway, 1944, Colorado, Theoretician[16]

[15] Source: Donna Haraway: Story Telling for Earthly Survival directed by Fabrizio Terranova. 2016. 90 minutes. $18.27 (DVD) and https://earthlysurvival.org Retrieved: 10.06.2019

[16] Source: https://www.mcgilldaily.com/2017/10/becoming-a-cyborg/ Retrieved: 15.06.2019

One of Haraway's neologies is Chthulucene, acknowledging the mutual confusion between human and natural and the need to *'establish kinship with the non-human world'* (Steve Paulson, 2019). At the heart of the concept of Chthulucene lies the sense of natural boundaries. It supports the drawing of natural boundaries without human intervention in human interaction with other biological beings.

The Capitolocene is based on clarifying the proposition that the Anthropocene has physical and human geographies and temporalities. As part of colonialism, pioneering progress, and capitalism, ecological regimes are enduring analytically to assess how human societies develop, organize, and consume resources, including food and water. It also reveals the cost of the ecological and political logic of governance - ecologies are designed, human and non-human populations degrade - violence and domination hierarchies drive both. However, as Haraway and Anna Tsing emphasized, there are always opportunities to endure and develop information systems and new life practices (Tsing, 2017).

The concept of autonomous personal agents defined biology centered around the study of interacting biological particles and entities in the Early Modern Age, representing the development of independent citizens (Charles Taylor 1989). According to Darwin's theory of life, aggregates of people with a common ancestor are recognizable entities competing. However, individuals are only the starting point for the standards of anatomy, physiology, and development. Organic systems were not constituted of individuals with cooperative and competitive connections until the second part of the 19th century, when ecology emerged, thereby complementing the notion of life science-based on persons (Gilbert, 2012).

The development of such a sophisticated personal and systemic formulation is dependent on numerous variables, the most important of which is technology. We can only perceive the parts of nature that technology allows us to see; thus, theories about nature are limited by what technology allows us to see. However, theory and technology interact: we develop technologies that we feel will be beneficial. The offspring of this device can identify subcellular organelles, viruses, and macromolecules. Polymerase chain reaction, high-throughput RNA analysis, and next-generation sequencing transform our understanding of the Earth's biosphere. They revealed not only a considerably profound and more diversified microbial world than previously anticipated but also a world of complicated and mixed

interactions not only between microbes but also between micro and macro life (Jeffrey I. Gordon 2012). These findings throw the widely believed "personal" worldview into doubt. Symbiosis is quickly becoming a fundamental principle of modern biology. It substitutes the essentialist concept of "individuality" with a term consistent with a broader system perspective, pushing life sciences in all directions. These discoveries point us toward transcending the self/non-self, subject/object dichotomy that has become a feature of Western thought. (A. I. Tauber 2008).

Figure 3.11: Endosymbiosis, a tribute to Lynn Margulis, Shoshanah Dubiner, 2012[17]

If symbiosis is considered the rule rather than the exception, what will biology be? If close cooperation between species is the primary characteristic of evolution, what scientific questions will become the most important, and how will this change our view of life? If all organisms are chimeric and there are no genuine single-gene individuals, what does "individual selection" mean? In biology, there are many ways to use the term "individual."

[17] Source: https://laboratoryplanet.org/en/manifeste-chthulucene-de-santa-cruz/ Retrieved: 12.06.2019

Individuals can be defined in anatomy, embryology, physiology, immunology, genetics, or evolution (Patrick Geddes and Peter Chalmers Mitchell 1911; Clarke 2010; Lynn K. Nyhart and Scott Lidgard 2011). However, these concepts are not entirely independent of each other. These definitions of personality are often not clearly stated in this way. Even in today's biology, the definition of what constitutes a single organism lacks definition. However, the definition is still implicit. Therefore, all evidence of symbiosis challenges all classical concepts of personality (Gilbert 2012).

> "We — all of us on Terra — live in disturbing times, mixed-up times, troubling and turbid times. Our task is to make trouble, to stir up potent response to devastating events, as well as to settle troubled waters and rebuild quiet places. In urgent times, many of us are tempted to address trouble in terms of making an imagined future safe, of stopping something from happening that looms in the future, of clearing away the present and the past in order to make futures for coming generations. Staying with the trouble does not require such a relationship to times called the future. In fact, staying with the trouble requires learning to be truly present, not as a vanishing pivot between awful or edenic pasts and apocalyptic or salvific futures, but as mortal critters entwined in myriad unfinished configurations of places, times, matters, meanings." (Haraway, 2016, 1).

Chthulucene is a simple word. It is a complex of two Greek ancestors (khthôn and kainos), named together as an opportunity to learn to live and die responsive in a damaged land. Among the forces of human extinction, the Anthropocene and the World Capital Era scandals are the most recent and dangerous. Effectively living and dying together in Chthulucene can respond fiercely to the orders of Anthropos and Capital. However, in 150 years, the number of human beings has increased by 9 billion. If we are lucky, this number will reach 11 billion by 2100. This prediction is not just a number. We cannot blame capitalism or any other word that begins with a capital letter to explain it. There is an urgent need to think again through the differences in historical locations and types of knowledge and experience (Haraway 2016, 2).

Chthulecene word inherits an interesting spider species name and its' behavioral practices. This spider is Pimoa Cthulhu. Pimoa Cthulhu lives among the stumps in the Redwood forests of Sonoma and Nam Doco districts in Northern California. This eight-legged Arachnid is linked to obtaining its specific names from the rejection of the depth, abyssal entities, and

elements is called Thrhonic of the language of the Goshute of Utah. Terra's Thrhonic powers transmit their tissues everywhere. However, there are civilized efforts around the agents of the sky gods to deliver them and establish the main singleton and the committees of the committees they, one and more (Haraway 2016, 31).

Figure 3.12: Pimoa Cthulhu[18]

By creating a slight change in the biological classification magic, from Cthulhu to Chthulu, with change to Pimoa Chthulu, Haraway struck a name for another place and others, yet and maybe: Chthulucene. The tentacle comes from Latin tentacles, which means "feeling," and tent, which means "feel" and "to try."

[18] Source: https://instituteforpostnaturalstudies.org/Pimoa-Cthulhu Retrieved: 18.04.2021

Chthulucene is defined as a period in which the human race, on a science fiction plane, will confront its arrogance and "supposed superiority" and experience a humble association with biological creatures from underground, without time or history. If we are blessed, people with tentacles, spiders, bacteria, different ways of perception, life, and death will be kinship together in n-dimensional time domains. Haraway proposes a "new synthesis" emerging in interdisciplinary biology and art, interdimensional string figures[19] that connect human and non-human ecologies, evolution, development, history, technology, and more. Among these actors are corals, microbes, robotic creatures, artists, and scientists. Blessed is a brutally broken space of time; it points to a time that is now and has not yet come (Haraway, 2016).

> "Science fact and speculative fabulation need each other, and both need speculative feminism. I think of sf and string figures in a triple sense of figuring. … In that sense, sf is a method of tracing, of following a thread in the dark, in a dangerous true tale of adventure, where who lives and who dies and how might become clearer for the cultivating of multispecies justice. Second, the string figure is not the tracking, but rather the actual thing, the pattern and assembly that solicits response, the thing that is not oneself but with which one must go on. Third, string figuring is passing on and receiving, making and unmaking, picking up threads and dropping them. SF is practice and process; it is becoming-with each other in surprising relays; it is a figure for ongoingness in the Chthulucene." (Haraway 2016, 3)

By developing her theory on Chthulucene, Haraway talks about four interlocking SFs. Science fact, speculative fabulation, speculative feminism, and string figures. There are too many elements that human beings are connected to. Moreover, things that we do not know yet exist within this network. What we do not know are part of the system by grift relationships and lead to the formation of the metabolism in question. Human livelihoods depend on genetic material and species richness based on ecosystem integrity. Various thoughts can be found about biodiversity extinction. These thoughts can also be speculative. Thoughts that are seen as speculative today may also be the reality of the future. The more speculative feminist idea of Gaia mentions that different string figures essentially exist in the same order. Haraway conceptualized each organism and process as a string figure.

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[19] Haraway uses the string figure expression to conceptualize the basic tools of her theory. Here, a series of intertwined concepts is expressed not without a unidirectional configuration. Every element of the Chthulucene world is part of this intertwined series of concepts.

Haraway frames Chthulucene with the understanding that "nobody lives everywhere; everybody lives somewhere. Nothing is connected to everything; everything is connected to something." [20] Here, Haraway claims, the mirage of the closed and autopoietic system of capital (or society) is revealed as one-sided and illusory. This kind of closed system thinking cannot help us think about the chaotic and confusing future liberation possibilities. This Chthulucene is a word that is not easy to slide into language. It is not self-generated but symbiotic: "It always appears in pairs until the end, and there is no initial and subsequent interaction unit" (Moore 2016).

All successful life is
Adaptable,
Opportunistic,
Tenacious,
Interconnected, and
Fecund.
Understand this.
Use it.
Shape God.
(Octavia Butler, Parable of the Sower 1993)

Since the processes of the interactions began to be conceptualized around the Chthulucene, I was being thought about how these interactions will occur. First, I started by defining the entities that will interact. On this plane, the critical concept is diversity. To be able to progress a Chthulucenic approach, the main necessity is variations of the diverse agents. In this thesis, it is proposed to name “variation” to every kind of biological asset because, regarding the Theory of Evolution of Darwin, we are all the different variations of the same essence of being. To marginalize the beings by naming them “species” is increasing the distances between human and other beings and emphasize the master of the world understanding/feeling. Perceiving the other existences as a variation of human beings will emphasize the equal world approach. This change of perception can lead to a better understanding and internalization Chthulucenic world imagination.

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[20] “The brand of holist ecological philosophy that emphasizes that ‘everything is connected to everything,’ will not help us here. Rather, everything is connected to something, which is connected to something else. While we may all ultimately be connected to one another, the specificity and proximity of connections matters who we are bound up with and in what ways.” (Van Dooren, Flight Ways, 60).

There is diversity among the species in terms of many characteristics. Some of these variations can be understood by looking very closely. Within its population, members with different morphology are formed in each character or character set. These variations and changes are called variations. Variations occur over time by a variety of genetic or non-genetic factors. Variation is seen in qualitative and quantitative features such as form, color, or pattern. The traits of members of a population are never the same. These changes constitute examples of variation.

When I started to think about interaction tools between variations, I came across several biological terms used in various metaphors. The precursor of these is metabolites. Metabolites are intermediates and products that occur as a result of metabolism.

The functions of metabolites are diverse: energy source, building block, stimulating and inhibiting enzymes, catalysts, defense, and interaction with other organisms, such as fragrances and pheromones. The primary metabolites are directly related to average growth, development, and reproductive processes. Secondary metabolites are metabolites that are not directly related to these processes but have essential ecological functions. Secondary metabolites are types of organic compounds that are not directly present in the normal growth, development, and reproduction of living things. Unlike the primary metabolite, sudden death does not occur in secondary metabolite deficiency. The secondary metabolite plays an important role in the plant's defense against herbivory and interspecific defense. Similar to the function of neurotransmitters in human nervous system, they function as chemical signals in plants that make plants respond to stimuli. Each vegetation in nature is a source of metabolites on its own. How do the artifacts integrated into the usual combination of all these metabolites affect the public space? Can integrity be achieved? Various scales of colors, textures, scent molecules, oxygen exchanges; are all a kind of metabolite exchange.

"We are all lichens." (Gilbert 2012)

Nature is in remarkable harmony as giant tentacles consisting of various metabolic activities. Human will continue their existence by embracing to be a lichen of this phenomenal unity.

3.4. FROM GLOBAL TO CHÔRA

In this section of the thesis, an explanation has been added to correctly understand the ‘global’ approach of the thesis. By understanding the globe and global, a new conceptualization has been developed to understand the world as a whole but with different components. This is very base and important on the prime level of creating new future theories, speculations, or fiction. To question what is global, extended the research into an inclusive conceptualization; chôra what creates its own perception of time and space. Is a fertile void that helps the existence of life. An intermediate space.

According to Scott Gilbert, the Earth actually should not be thought of as ‘global’ because it is not a unified space. In the same discussion, Kenneth Olwig supports that the Earth does not resemble a globe. According to Olwig, the fact that many people perceive and act as if the world is a globe has harmed the argument over what should be called ‘climate change’ rather than ‘global warming.' This is because the effects of climate change (such as temperature change) are not felt uniformly across the anisotropic surface of the earth, as would be the case if the earth were characterized by the isotropic Euclidean space of a globe, and people in areas where this is not felt are less likely to believe that climate change is happening (Haraway, Ishikawa, Gilbert, Olwig, Tsing, Bubandt 2016).

Noboru Ishikawa’s global approach leads to an interesting notion: sphere. His team has been working on a research project, where they utilize the word 'Humanosphere'. They began this research, titled ‘In Search of Sustainable Humanosphere in Asia and Africa,' in 2007 (Lopez et al. 2013), before they were aware of the Western debates on ‘the Anthropocene.' On a global temporal-spatial scale, they envision three spheres: the Geosphere, the Biosphere, and the Humanosphere. The Geosphere first appeared about 4.5 billion years ago, followed by the Biosphere about 4 billion years ago. The Humanosphere is only about 200,000 years old, yet it has become the dominating force of change on a global scale since the agricultural and industrial revolutions (Haraway, Ishikawa, Gilbert, Olwig, Tsing, Bubandt 2016).

According to Ishikawa, the Anthropocene and Humanosphere appear to be very similar. Their conceptualization, on the other hand, is more attentive, they argue, to the non-unified aspect of the world mentioned by Gilbert. They also place less emphasis on humans'

positionality concerning other agents in the spheres. Ishikawa explains how the two concepts differ with these: The Humanosphere is governed by a work that underpins other spheres. As a result, the Humanosphere is defined as including the geosphere, biosphere, and human civilization. The geosphere was the first to appear, followed by the biosphere, and eventually human society in a narrow sense and the Humanosphere in a broader meaning. This sequence is critical since human society is heavily reliant on the survival of the preceding spheres. In other words, the Humanosphere's structure is characterized by elements like material and water flows, biological activities in shared lands, rivers, and oceans, and their intricate interactions (Haraway, Ishikawa, Gilbert, Olwig, Tsing, Bubandt 2016).

We also pay special attention to tropical zones, which have the most active material flows and biomass regeneration. If not for land-based, productivity-driven capitalism, the flows and regeneration there are a driving force for the sustainable existence of multispecies, including humans. Attention to the history and current condition of articulations between the geosphere, biosphere, and human society in Asia and Africa led to paradigm shifts, or specific adjustments in our focus: from temperate to tropical zones, from production to sustainable lifestyle, and from land surface to sphere. We suggest that many societies in the Asian and African Humanosphere pursue endogenous development rather than growth in per capita income or population. Until a few centuries ago, this was the standard for most human communities. The Humanosphere isn't two-dimensional or limited to a single surface. It is not only the ground surface on which to grow that is important but also other factors that contribute to multispecies livelihoods and environmental sustainability. He assumes 'spheric' vision is the result of a Japanese perspective: *shinra bansho* (森羅万象) is a Japanese word that means "all things in the universe" or "all creation between heaven and earth," of which we humans are merely a little part (Haraway, Ishikawa, Gilbert, Olwig, Tsing, Bubandt 2016).

Tsing thinks ‘sphere’ moved to something like ‘an encompassment of many disparate things. This sphere isn't always genuinely a sphere. It is a bag of the entirety; it's miles the sector of residing things; it's miles all of the mass and the matter, and the interconnection of the entirety at the floor of the Earth and withinside the water. This approach reaches out to refer to Western science. On the opposite hand, it's far doing something completely different. It is that this idea of undifferentiated mass is crucial to suppose with. This is the wealthy blend

of roots and rhizomes, a multitude of biomass. This works towards the acquainted differences of Western science; it forces us to consider entanglement as a whole (Haraway, Ishikawa, Gilbert, Olwig, Tsing, Bubandt 2016).

Tsing no longer assumes that any of the spheres mentioned are precisely spheres. She thinks that the ‘Biosphere’ noted would possibly be, instead, ‘the world of living things’. She conceptualizes the Meratus Dayak perception of bulu gumi, which means ‘the body hair of the earth’ which; it's all the living things, within the water, in the air, and on the surface of the earth. It's all those things: they are the body hair of the earth (Haraway, Ishikawa, Gilbert, Olwig, Tsing, Bubandt 2016).

Supporting Tsing’s analogy, Olwig proposes the Greek concept of choros. It was a confined space, like a jug, from which everything welled up, according to Plato, who spelled it chôra. And he characterized it as a kind of feminine principle, but from the perspective of the Greek polis citizens, it was a sense of ‘where things take place,' not within a sphere, but as they take place in a complex intertwined interaction. Choros thus defines a location from within, rather than from without, as limits are drawn on a map or globe do, but as, for example, grazing animals define a common pasture from within (Haraway, Ishikawa, Gilbert, Olwig, Tsing, Bubandt 2016).

Following Olwig’s Haraway thinks the chorion, the mammalian membrane, in embryology, is also related to the notion chôra. Olwig agrees, and he claims Plato is unaware of its embryonic implications! Plato is a follower of the utopian concept of Euclidian space. There are two crucial things in his universe. The first is the 'idea,' while the second is the 'chôra.' He considers the chôra to be a distorted idea. He does not grasp the concept of a dream. However, he continues to define it as a feminized vessel in which women are reduced to jugs that give birth to everything. Plato conceived of the chôra as a sphere, an enclosed Euclidean spatial vessel from which everything emanates. The Greek concept of choros, on which their polity was established, was, nevertheless, closer to the eastern concept of nothingness. Because of the intertwined relationships between people and the material of existence in general, an unlimited nothing becomes a someplace, a choros, that feeds life (something like a placenta) (Haraway, Ishikawa, Gilbert, Olwig, Tsing, Bubandt 2016).

Where the discussions reach, it seems that the Chthulucenic approach is based on consciousness and awareness. The mind-centered Anthropocene taught us to think critically. With this way of thinking, when we criticize the epoch we live in, it interestingly created its own dilemma. This dilemma creates another form of consciousness: Chthulucene.

Based on all these contexts, while creating the Chthulucenic approach, the concept of *chôra* is very essential for the spatialization of the Chthulucenic approach. The spatialization in public space/sphere needs an emergent imagination in a Chthulucenic body. And the chôras are proposed as a spatialization context in a Chthulucenic, equal world.

3.5. AS AN INTERACTION SPATIALIZATION: A HYPOSTASIZE IN RURAL

Chôra is considered a fundamental concept on the Chthulucenic design approach proposed in the thesis. The Chthulucenic body of public space/sphere imagination can spatialize as spaces of equals by hypostatized chôra spaces. In chôra spaces, different variations can interact with various metabolites. This is considered as a bidirectional interaction which is also from dwelling areas to nature itself. By objecting to the Anthropocenic world's unidirectional pragmatics (only for human) approach, chôra spaces enable the interaction from human to nature with all their cultural benefits.

Chôra | A Liberating Spatial Thinking project, which is given as a study in the thesis, aims to create buffer spaces amid settlement and pure nature. These spaces are proposed as a common space for all the users in the peninsula. The rural interaction space is convertible for interdisciplinary production which is aimed at supreme interactivity. Being the intersection of nature and settlement provides interaction opportunities for various species.

Chôra | A Liberating Spatial Thinking project was proposed by Istanbul Bilgi University History, Theory and Criticism in Architecture Master students Seda Arslan and by her partner Aslıhan Yıldırım. During Istanbul Bilgi University Summer School for Graduate Programs in Architecture, July-August 2020 Datça Peninsula: Micro-ecologies of A Mediterranean Enclave; Datça Peninsula has been analyzed based on the GIS data. A new zoning strategy has been progressed and depending on the zoning data, a new spatialization has been proposed.

At the beginning of the summer course, the readings about cultural geography, micro-ecologies, landscape morphology, and Datça housing were proposed by the mentor Asst. Prof. Burcu Kütükçüoğlu. Between the readings, the major point that caught our attention was one of the ideas of Nicholas Purcell and Peregrine Horden. Horden and Purcell were proposing that cultural geography could generate measurable data. The main problems of Datça were; the areas reserved for tourism could not be controlled and were threatening the fertile agricultural lands. We continued our analysis by problematizing this and focused on how we could define a measurable interface in Datça Peninsula.

I was academically interested in the notion of chôra and somehow chôra has seemed to be very related in designing a measurable interface, so I focused on defining this invisible relation. In the beginning, it was an ironic relation because chôra is a boundless, undefined area, but we were trying to imagine a measurable interface. We continued our analysis based on the idea to create a shared public space in the rural by chôra context. With the result, we realized that invisible relation in a solid space.

Chôra is a fertile void that helps the existence of the city by concentrating on the pastoral void. Intermediate space amid the outer landscape and the city. The 3rd species. The urban texture in chôra creates its own perception of time and space. The day-night cycle is shaped according to the city's/settlement’s own cycle. Without the support of the city/settlement, the chôra seems to be destroyed.

Plato describes the chôra as an unnameable, unconvincing field, containing, encompassing when compared to reason and logic. Thus, in contrast to systems consisting of designs that are clear in their meaning and do not allow for ambiguity, chôra corresponds to a plane consisting of impulses that are temporary and especially spiritually mobile. Therefore, it is the movement that characterizes the chôra; it is not an established system. It is an invisible and shapeless form; ideas, i.e. infinite forms, perceptibles, things we can see and touch (Jacques Derrida 1995).

Plato describes the chôra with the metaphor of the mother. In Plato's words, the nature of chôra is to hold, nurture, and bring into the world. Chôra shows the vacancy value with density, outside the city (Derrida 1995).

The intermediate situation at the end of the settlement areas in Datça is an emptied space in the chôra. The artifact border, which contains a ritual, is a void that can allow many things to occur. This space also has a spiritual value. The people living in the region come together for nature rituals in this place. The absence of a missing space becomes meaningful with this ritual. This is also an interaction with nature, a transmitting area. The fertile soil, fertile area/chôra, between the settlement areas and agricultural areas, comes across in Datça as an area where human can experience the vegetation and meet with other species.

Chôra is relational and provides a context on the same level. Being relational does not get stuck in an internal handicap of being when there is a relation, it does not only imply a discursive existence. Rather, being relational is opposed to absoluteness. *It emphasizes the dynamics of change and formation.* Chôra as a space, is precisely the place of struggle, of change. It is not perfect, it is rough, it is built not given.

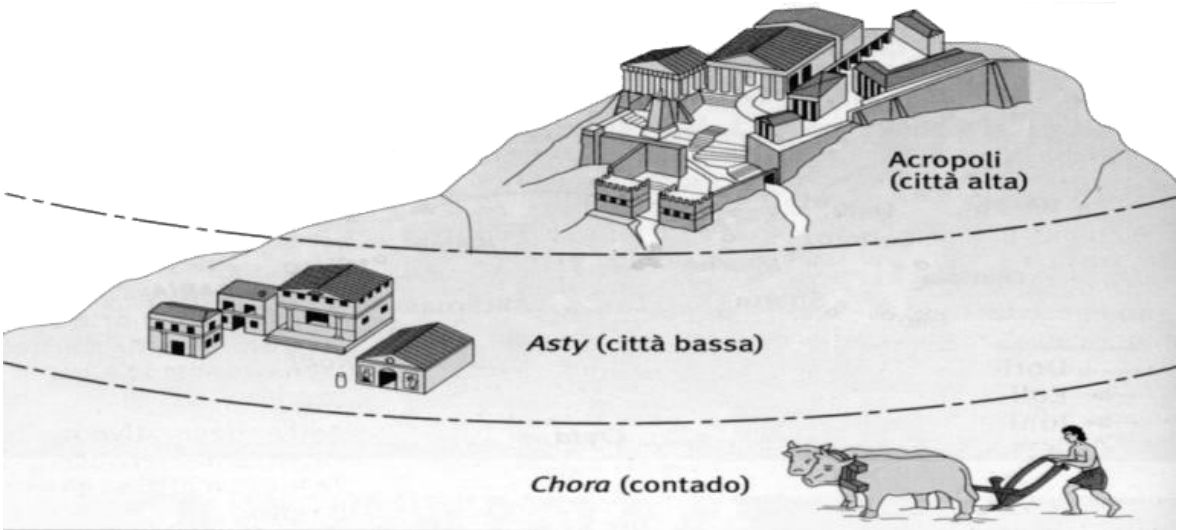

Figure 3.13: Chôra – citta relation[21]

[21] Source: https://1csa201617.wordpress.com/2017/04/18/la-polis/ Retrieved: 24.04.2020

Depending on the idea of finding the chôra spaces in Datça peninsula; various analyses are executed. The contour mapping, mountains, and grabens are visualized to understand height relations.

Figure 3.14: Contour mapping of Datça Peninsula (Arslan & Yıldırım 2020)

Figure 3.15: Mountains and grabens of Datça Peninsula (Arslan & Yıldırım 2020)

The main and side roads are visualized to understand horizontal interactions.

Figure 3.16: Main roads of Datça Peninsula (Arslan & Yıldırım 2020)

Figure 3.17: Side roads of Datça Peninsula (Arslan & Yıldırım 2020)

The bays and sea access are visualized to understand the Mediterranean interactions.

Figure 3.18: Bays of Datça Peninsula (Arslan & Yıldırım 2020)

Figure 3.19: Sea access of Datça Peninsula (Arslan & Yıldırım 2020)

The tourism attractions and density are visualized for the relation of settlement and tourism.

Figure 3.20: Tourism attractions of Datça Peninsula (Arslan & Yıldırım 2020)

Figure 3.21: Density analysis of Datça Peninsula (Arslan & Yıldırım 2020)

The centers are visualized to understand the main chôra beginnings.

Figure 3.22: Centers of Datça Peninsula (Arslan & Yıldırım 2020)

The main species of the forest; Pinus Bruita, Maquis shrubland, Corrupted Maquis, and non-fertile stony land are visualized to understand the interactions of the existing species.

Figure 3.23: Pinus Bruita population in Datça Peninsula (Arslan & Yıldırım 2020)

These visualizations were dramatic in a way to understand the density of nature actually on the peninsula. In fact, human was occupying a very small area even though, the peninsula was in danger because of human activities. Maquis shrubland was occupying a lot more than human but there was no danger because of Maquis in the peninsula.

Figure 3.24: Maquis shrubland and corrupted Pinus Bruita population in Datça Peninsula (Arslan & Yıldırım 2020)

Figure 3.25: Corrupted Maquis and stony land in Datça Peninsula (Arslan & Yıldırım 2020)

At the intersection points of all these data, the fertile agricultural lands and chôra spaces are examined. Chôra spaces were not in the majority, even though they have formed as buffer zones amid the settlement and the natural habitat. These chôra spaces were significant and also rare and with this sprawl, it can be said that; on the peninsula scale, chôra spaces must be considered as protected areas.

Figure 3.26: Fertile agricultural land in Datça Peninsula (Arslan & Yıldırım 2020)

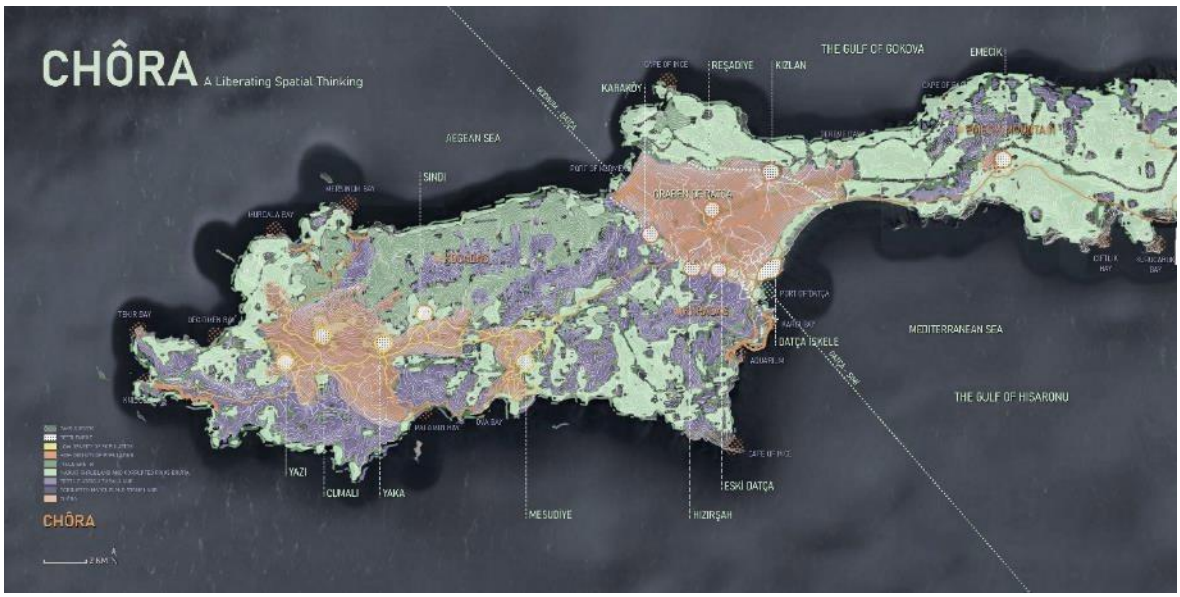

Figure 3.27: Chôras in Datça Peninsula (Arslan & Yıldırım 2020)

MICRO-ECOLOGICAL ZONING: Chôra was a scalable interface, so we focused on determining micro-chôra spaces, that we named as michôra, in different scales. In the focal region Yakakoy, the settlement takes place within the road line. Forest (1st species), settlement (2nd species), and agricultural areas are determined. The intermediate zone amid the 1st and 2nd species, as well as the outer landscape and the residential area, becomes spatial and the 3rd type, chôra, emerges. The 1st species of the forest is predominantly Turkish pine, generally associated with altitude and water resources. Interaction increases with settlement on the fertile lands at the foot of this untouched region. Production activities begin in the fertile soil, the area of interaction of species, chôra. Subspecies and their regions are determined according to the micro-ecological approach and zoning strategy.

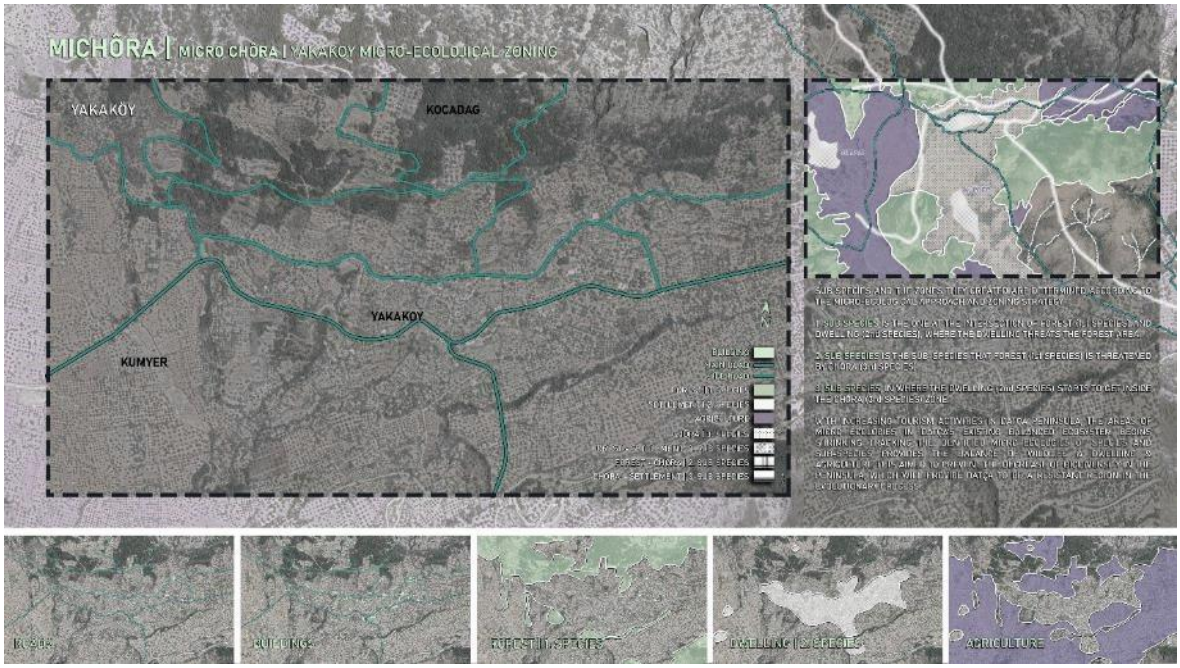

Figure 3.28: Yakaköy satellite image (Arslan & Yıldırım 2020)

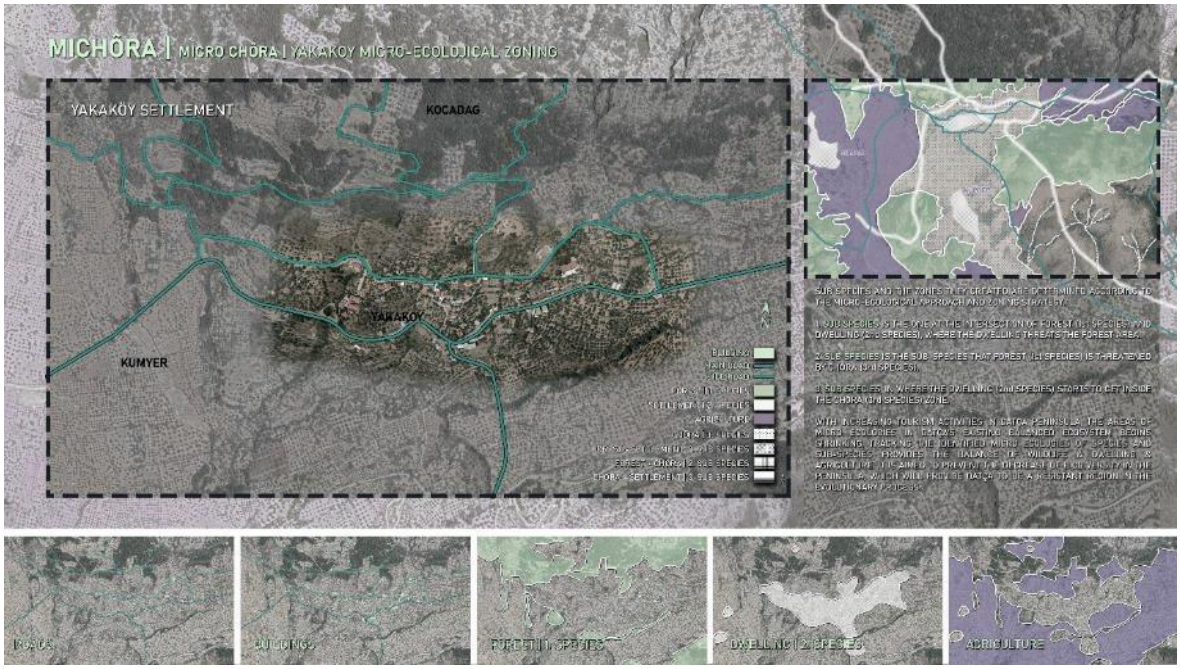

Figure 3.29: Yakaköy drone photos (Arslan & Yıldırım 2020)

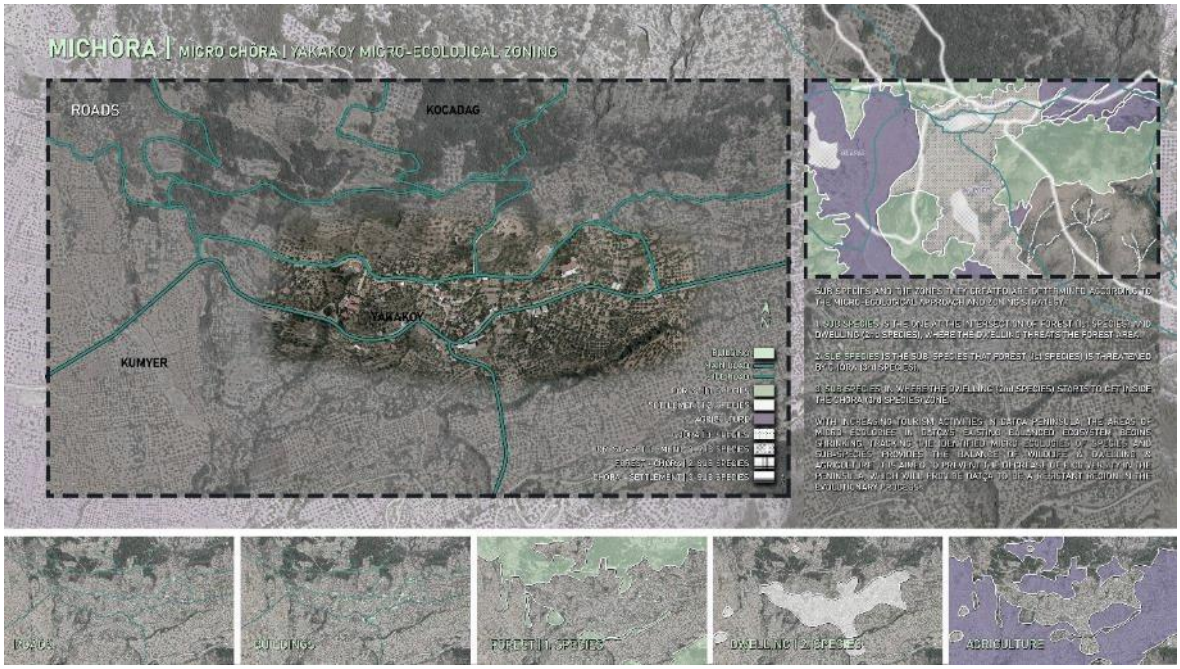

Figure 3.30: Yakaköy roads (Arslan & Yıldırım 2020)

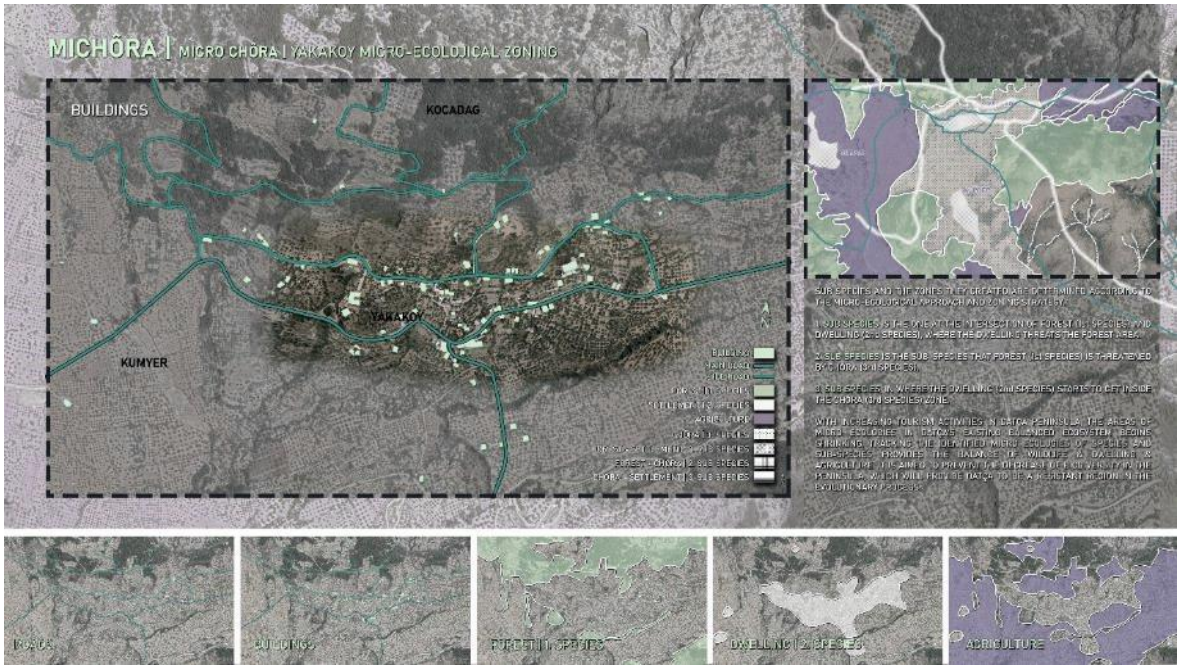

Figure 3.31: Yakaköy buildings (Arslan & Yıldırım 2020)

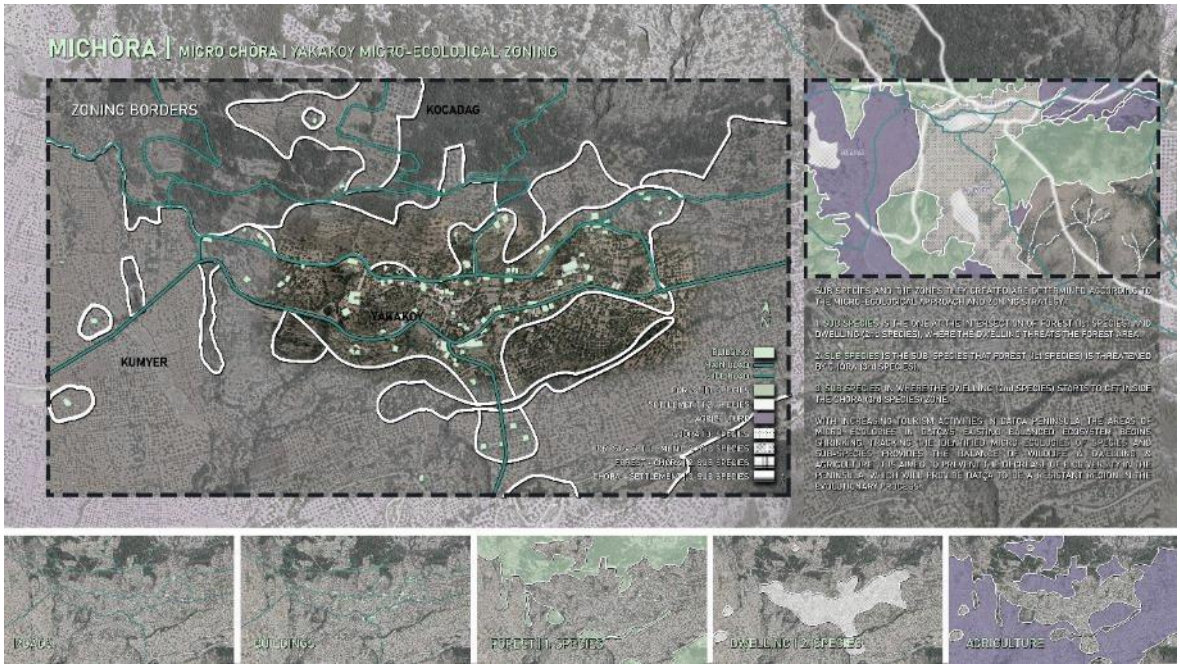

Figure 3.32: Yakaköy zoning borders (Arslan & Yıldırım 2020)

FOREST | 1st SPECIES: The untouched lands that have not yet begun to interact with humans, the union of various wild species. The first formation is diversified and strengthened with the effort of adapting itself to landforms and climatic conditions. However, this species diversity is limited due to the difficult living conditions. It includes various trees, shrubs, herbaceous plants, fungi, microorganisms, insects, and animals of certain height and size. There are many micro-ecological zoning potentials in this land ecosystem, which usually consists of natural ways, in the soil area, whose boundaries are drawn with certain heights.

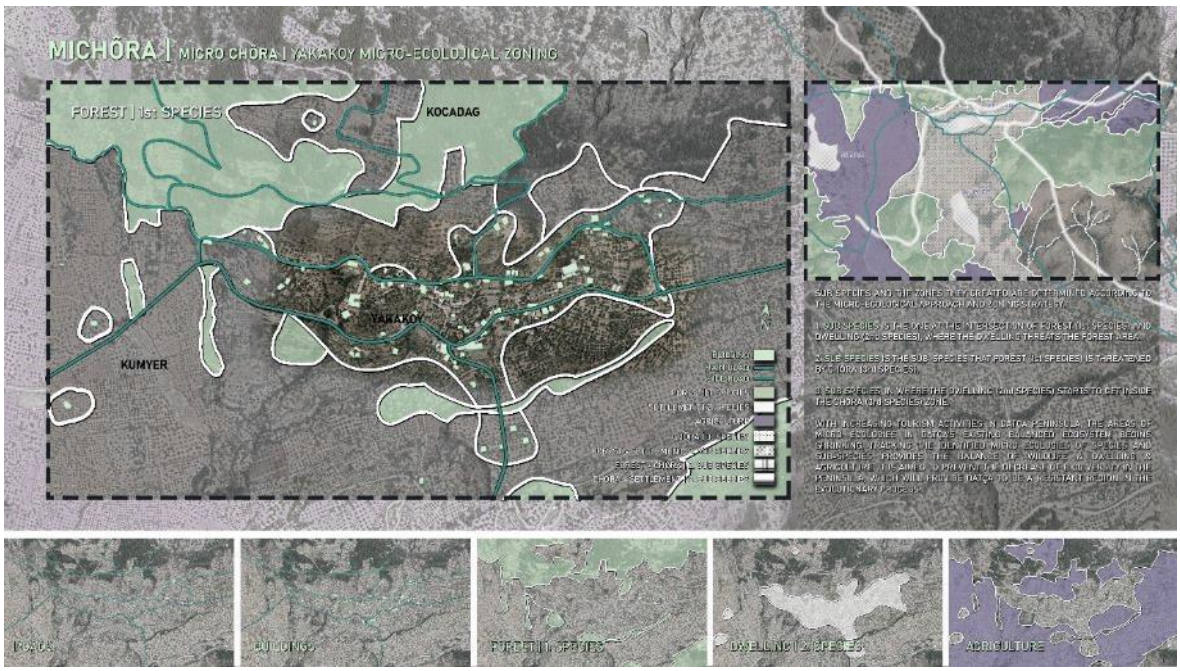

Figure 3.33: Yakaköy forest areas (1st species) (Arslan & Yıldırım 2020)

SETTLEMENT | 2nd SPECIES: As a result of human-nature interaction, which started with the expansion of transportation axes, the concentration of settlements in the center of fertile lands. Human begins to interact with the 1st species of forest and the other living species in it. The vegetations, re-formed by the artifacts as a result of these interactions. The fact that new adaptations acquired through the interaction of different species provide a more advantageous position in the evolutionary process. Sites of settlement (2nd species) make these reactions possible.

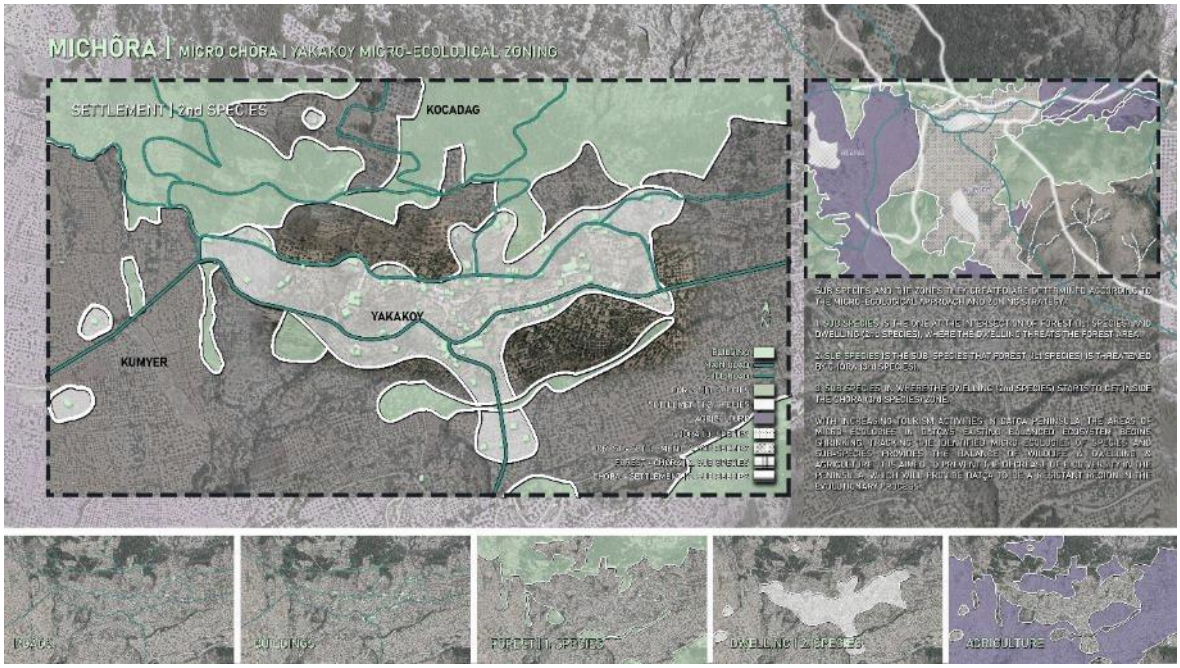

Figure 3.34: Yakaköy settlement areas (2nd species) (Arslan & Yıldırım 2020)

CHÔRA | 3rd SPECIES: The 3rd species. Intermediate space amid the outer landscape and the city. A fertile void that helps the existence of the city, concentrating on the idyllic zone. It is the movement that characterizes chôra; not an established system. It is an invisible and amorphous form; involving ideas, i.e. infinite forms, perceptibles, things we can see and touch.

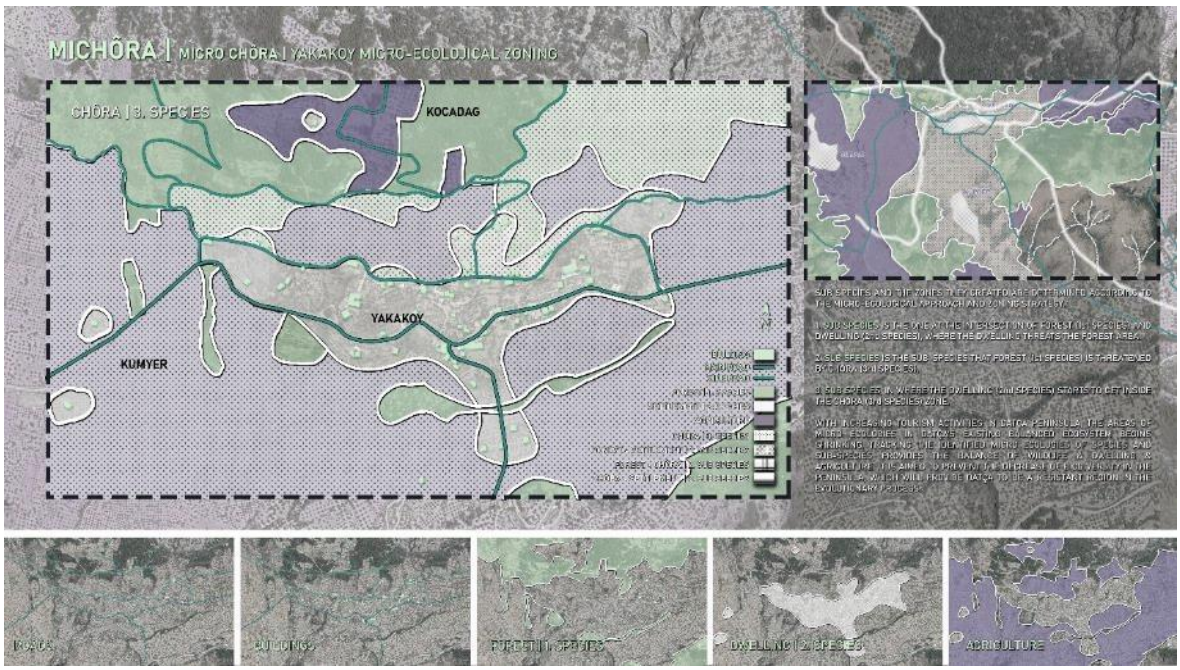

Figure 3.35: Yakaköy chôra areas (3rd species) (Arslan & Yıldırım 2020)

FOREST (1st SPECIES) ∩ SETTLEMENT (2nd SPECIES) | 1st SUBSPECIES: By determining the intersections amid the main species, the subspecies were defined. The subspecies were important to develop a strategy to be able to create measurable chôra areas. The strategy was focused on the growth and reduction ratios of the subspecies that are defined depending on the main species' interactions. 1st subspecies is the subspecies in which the settlement area begins to enter the forest area, which remains at the intersection of forest (1st species) and settlement (2nd species). The forest area is threatened by the type of unplanned settlement that leaves more waste.

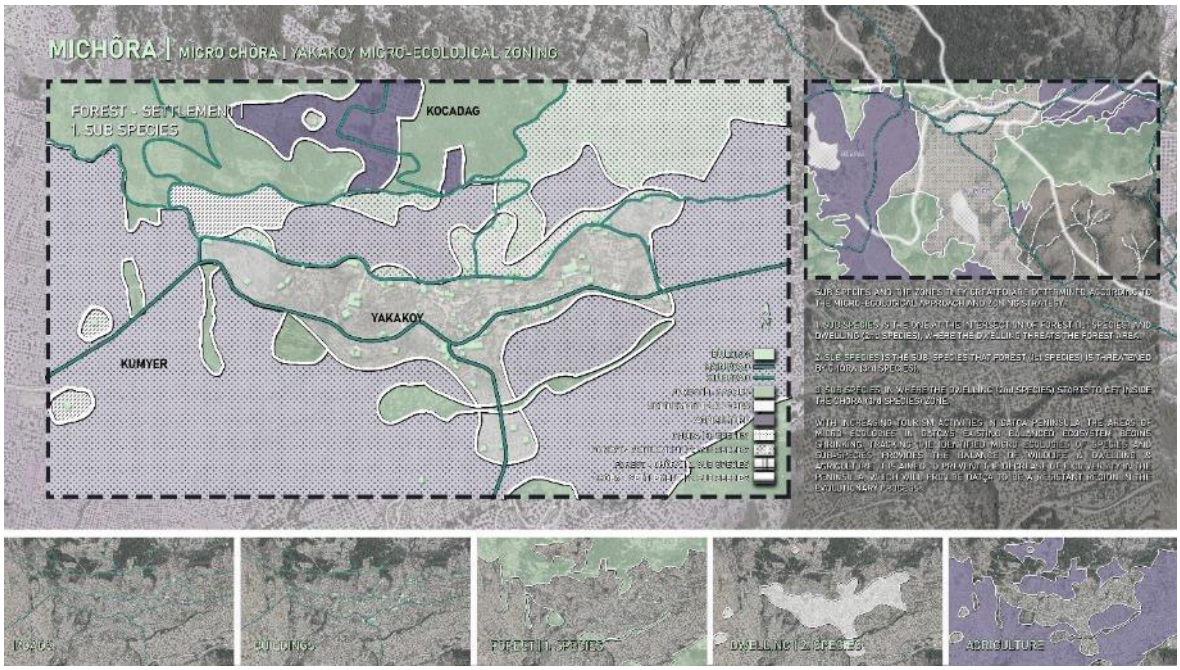

Figure 3.36: Yakaköy forest-settlement (1st subspecies) (Arslan & Yıldırım 2020)

FOREST (1st SPECIES) ∩ CHÔRA (3rd SPECIES) | 2nd SUBSPECIES: It is the subspecies formed by the conversion of the soil of the forest area to agricultural land, threatened by the 3rd species chôra. It is the subspecies that remains at the intersection of forest and chôra, where the chôra area begins to penetrate into the forest area. When the forest area is converted to agricultural land, animal species are under threat.

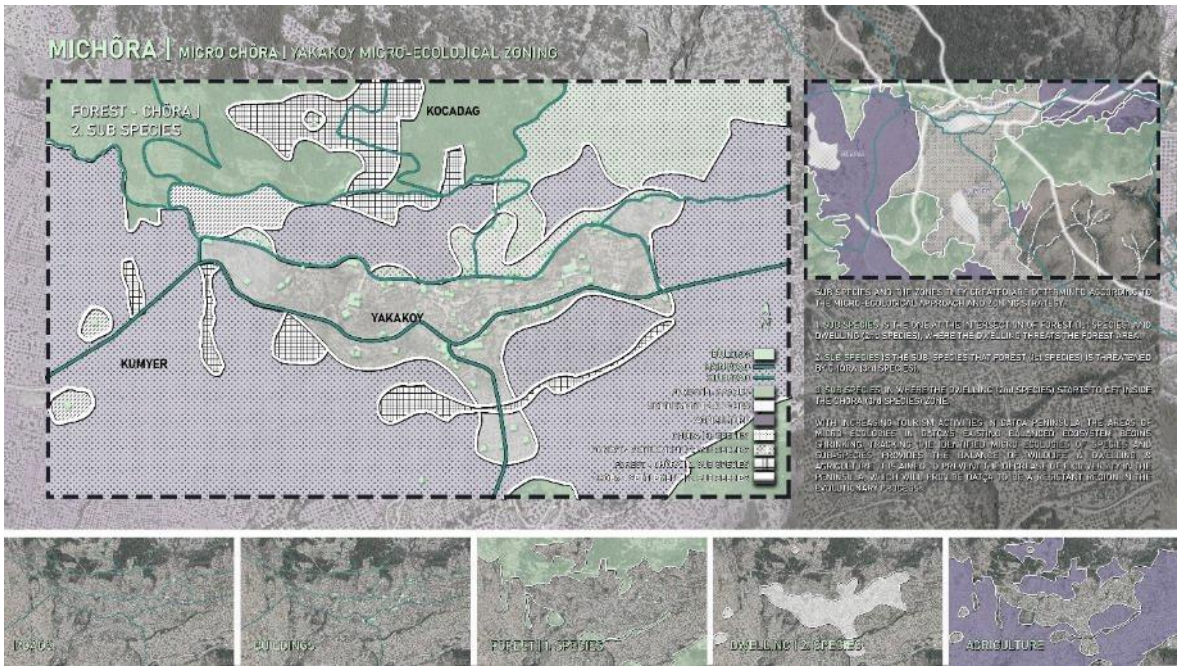

Figure 3.37: Yakaköy forest-chôra (2nd subspecies) (Arslan & Yıldırım 2020)

SETTLEMENT (2nd SPECIES) ∩ CHÔRA (3rd SPECIES) | 3rd SUBSPECIES: It is the subspecies in which the 2nd species settlement area begins to enter into the 3rd species chôra region. With the increase in settlement areas, the stain of the chôra areas that feed the city begins to shrink. This is the narrowing of the area that allows the city, as well as the reduction of species diversity and the ground provided for human-nature interaction.

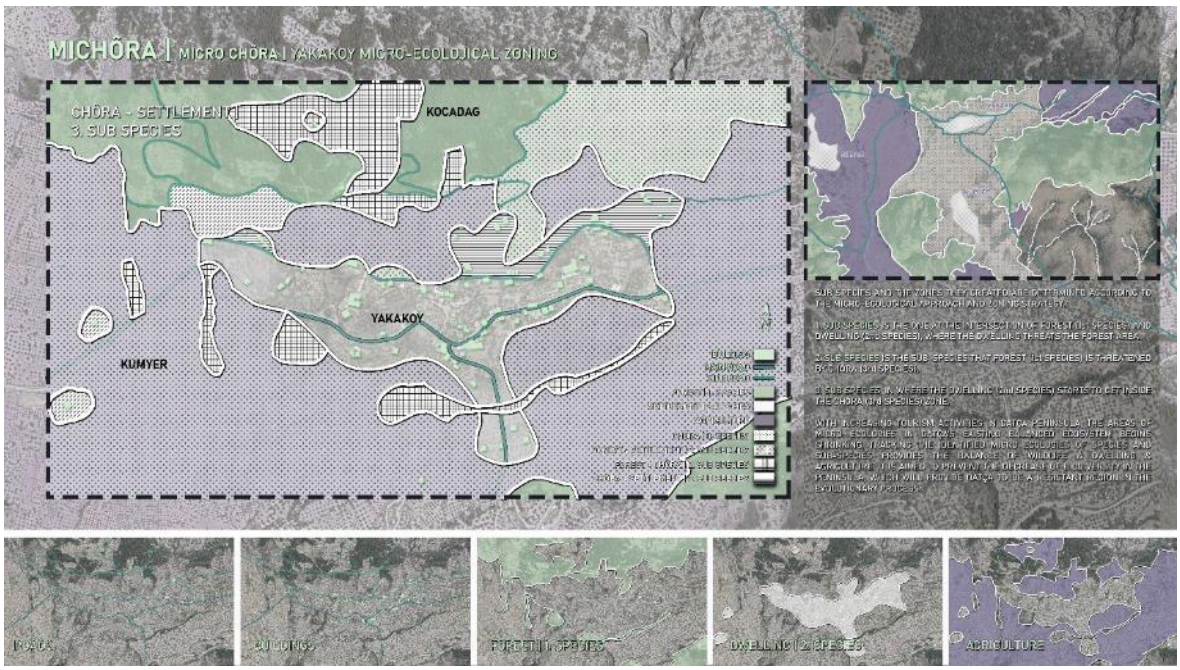

Figure 3.38: Yakaköy chôra-settlement (3rd subspecies) (Arslan & Yıldırım 2020)

Following the reading of Datça micro-ecologies, the idea of a voluntary society, kibbutz, where people live in accordance with a certain social contract based on egalitarian and social principles in a social and economic framework, was proposed for the region. Commonly used production areas are in intermediate spaces outside the city. Proposing kibbutzs which are based on the philosophy of voluntary production in micro-ecological subregions formed in chôra areas that are developing outside the 1st species forest and 2nd species settlement area.

Kibbutzs are mainly agriculture-based. Industrial production is as important as agriculture. They are found throughout the region and differ in size, location, climate, agriculture, types of industries, population, general character. They adapt to different styles of production.

In kibbutzs; economic instruments are determined collectively according to the needs of the members, their educational, cultural, and social position. Each member functions without any economic incentives. In kibbutz areas, temporary constructions which are inspired by sukkahs, that will be used by volunteers, are proposed. Sukkahs are temporary shaded and resting areas set up during the celebration of Jewish holidays. The idea of the non-residential kibbutz allows buffer zones to exist for interaction between species.

With the increase in tourism activities on the Datça peninsula, the areas of micro-ecologies in Datça's existing balanced ecosystem begin to shrink. By following the traces of determined micro-ecologies, species, and subspecies, it is aimed to prevent the decrease of biological diversity in the peninsula by ensuring the balance of wildlife & dwelling & agriculture. The peninsula, whose species forms have diversified with human interaction, is provided to benefit from the potentials created by these interactions. The diversity of species aims to exchange adaptation techniques of different species to space, thus making Datça a resilient zone in the evolutionary process. This result and design understanding is perceived as a Chthulucenic design approach in the thesis. Designing variable spaces enable multiple interactions between variations by the metabolites will lead us to create a more equal spatialization in a world of unity.

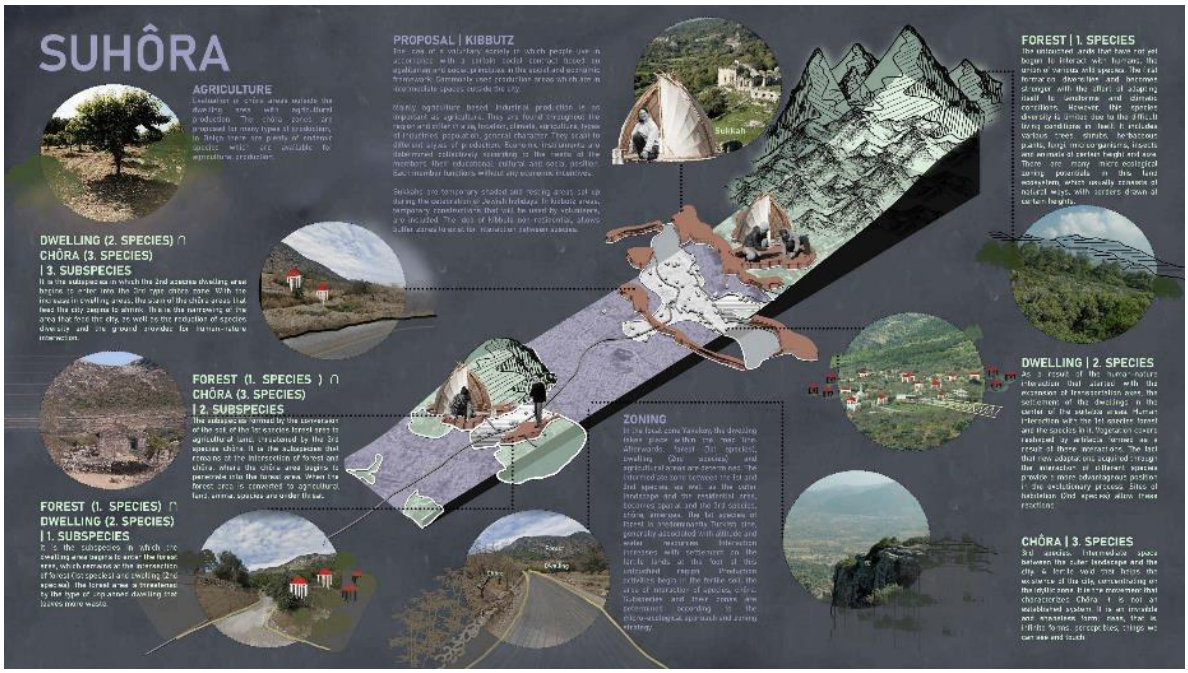

Figure 3.39: Proposal collective production areas in chôras in Datça Peninsula (Arslan & Yıldırım 2020)

4. PUBLIC SPACE AND SPHERE

For the interaction of different variations, the main spatialization is the public space in urban, rural, or anywhere in the world; our only living space (please search for lebensraum for further reading). This chapter further explores the concepts of public space, public sphere, and their interrelationships. In this part of the thesis, the public sphere concept is discussed interrelated with the argument using the spherical definition for the world instead of global. This sphere understanding in the public sphere is defined by Jürgen Habermas in his theory based on the pragmatism of communicative actions. Firstly, public space and public sphere are defined separately. Then, both concepts are approached to Chthulucene.

4.1. DEFINITION OF 'PUBLIC SPACE'

> *"The space created by human action constitutes the context in which this action takes place."*
>
> *(Işık 1994, 13)*

Jürgen Habermas, born in 1929, is a German professor of philosophy, sociologist, and political scientist. His studies, foundations of social theory and epistemology; advanced capitalist industrial society and democracy analysis; the provision of laws in critical social evolutionist content; and contemporary—especially German—politics. His social theory advances the goals of human emancipation while creating an overarching universal moral framework.

There are different discourses on public space, so various definitions can be made. The use of the general concept in daily language shows the concept has multiple meanings that are not compatible. These meaning differences stem from the historical process, from the inability of the everyday language and the sciences, especially law, politics, and sociology, to make precise determinations to replace the traditional categories related to the concept (Habermas 1997, 57). Public space issues are associated with the concept of the public sphere, but space has been conceptualized and applied in various ways.

To adequately address this question about the relationship between public space and the public sphere, it is helpful first to define the terms. Different actors have used both "public space" and "public sphere" to convey different meanings. The Habermasian formulation of the public sphere introduces a new form of social interaction facilitated by a network of institutions of physical locations and indirect discourses. In this model, they understood the public sphere as a place-based, communication-based discursive space as well as exchanges. The public sphere can also be understood as a specific type of relationship between participants. These historical forms of sociality mediate this relationship staged at specific points in space and time. The public sphere is also procedurally understood as a normative ideal based on principles aimed at guiding interaction. These historical forms of sociality mediate this relationship staged at specific points in space and time.

The meaning of "public sphere" may seem obvious, but the term has also been conceptualized in various ways. Concepts of "public space" may be based on the physical characteristics of a place, the institutional structures, and policies that affect a place, or the uses and activities performed in the place.

Regarding this research, public space is examined by the perception of Jürgen Habermas. By the "public sphere" discussion plane of Habermas, public space is defined over communicative actions. A discussion ground is created on how a Chthulucenic public space, conceptualized by Haraway, can be constructed with digital knowledge commons and digital tools. It is discussed how the perception of sociability that Chthulecene refers to can be transformed by Habermas' discussion of the public sphere. The discussion plane creates predictions about how the correlation of a social plane of existence defined by Habermas in public space and a Chthulucenic, therefore physical plane of existence, can develop.

The concept of the public is a concept that includes binary opposition itself. The concepts of 'public' and 'private' are a couple of concepts that find meaning in the context of the 'binary opposition' they establish with each other. Every word to say on binary oppositions makes sense if they evaluate both without leaving a concept out. Besides being binary oppositions, private and public concepts gain meaning according to the historical period and language in which they are used and evaluated from different perspectives and dimensions.

Theoretical and practical data on what the public space is, as one of the basic concepts of human life, belongs to the ancient period.[22] In ancient Greek practice, the structure of the public and private spaces, the identity of the actors in this structure, and the functions they undertake have changed over time. In Greek thought, the polis (political/public space) is the space of freedom. In contrast, the household (private space) is the space of necessity in which the crucial activities have pursued the continuity of life. In the clear separation amid these two spaces, the only possible relationship is to enable the individual to be exempt from the life obligations of the household by having women, slaves, and children obtain freedom for the polis (Hannah Arendt 1958). In the Greek consciousness, the public is a space that offers freedom, equality, stability, and the immortality of the individual's glory in the face of the private sphere, which is ashamed of the deprivations endured to survive (Habermas 1997, 60).

In ancient times, the public space is a sphere where free individuals, freed from vital necessities, meet verbally (lexis) and gain immortality in both political and virtue fields with their actions (praxis). On the other hand, the private space is an area in which economic activities are carried out, dominated by household imperatives and deprivations, necessary for the presence of the head of the household in the public space but at the same time despised (Habermas 1997).

The prominent use of these concepts in Western languages coincides with the second half of the 15th century. The word 'public' was used for the first time in English by Sir Thomas Malory in 1470 to express 'the common interest of the society. About seventy years after this usage, a new meaning has been added to the word 'public' as 'open and obvious to general observation.' It is seen that the word 'private' was used in English in the 1540s to mean 'privileged' person to distinguish senior state officials from the rest of the people. By the end of the 17th century, the concept of "public" has been attributed to the concept of "open to everyone's control" and "private" as "a hidden living area restricted to one's family and

[22] Habermas emphasizes that the 'public space' and 'private space' distinction emerged in Ancient Greece and throughout the Middle Ages, public private categories and the public were generalized as res publica (republic) within the framework of the definitions of Roman law (Habermas 2003). With the interpretation of the Greeks, the public model, which is a free space in which one can show its superiority from others (Arendt 2013: 90) and gain honor, continued by being traditionalized as 'res publica' in Roman law throughout the Middle Ages.

friends." By the middle of the seventeenth century in French, the concept of 'public' (le public) has been used to express the community formed by theater audiences. In addition to this use, the le public expressed common interest, the political community and gradually became a special area of sociality during the Renaissance period. In German, the concept of 'public' (öffen) is derived from the older adjective 'public' in the 18th century by establishing a similarity with publicity and publicity. Accordingly, 'public' has been seen as a concept belonging to the 'bourgeois society' that was institutionalized according to laws (Richart Sennett 2002, 32 - Habermas 2003, 90-91).

The representative public space that developed in the feudal society of the Early Middle Ages (5th-6th centuries) and the Late Middle Ages directly depends on the concrete existence of a ruler. In the representative public period, the public pointed directly to the power, not the whole of the people and their voice. Public representation of political and economic power continued until the reform period (Habermas 2015, 97).

Renaissance, which started in the 15th century, resulted in the weakening of feudalism. After the Renaissance, the aristocracy/bourgeois land sovereignty lost its representative power. In this period, with the development of the early capitalist exchange economy, national and regional states emerged, the representative public was squeezed into the palace, and the state and society were separated (Habermas 1997, 70). The actors of the bourgeois public sphere, which developed under these conditions, began to engage in a struggle of ideas with the public authority. However, this struggle directed the power towards realizing the principle of controlling, not sharing it, which caused the state affairs to be perceived as public (Habermas 2015, 98-99).

In the Ottoman Empire, spaces such as halls or clubs were the outputs of the social structuring that started to change after the reform period. However, coffeehouses, which played a critical role in the emergence and development of the public sphere and public opinion in the West, first appeared in the East. The first example of the first coffeehouses established in Mecca in 1510 (Ralph S. Hattox 1998, 65, 67-70) was opened in Istanbul Tahtakale in 1554 as the first example (Desmet-Grégoire 1999, 17). These places created a contemporary socialization opportunity for the society, apart from houses, barracks, bazaars, and mosques.

While religious places such as mosques allowed people to come together for worship, barracks only allowed soldiers to come together. Moreover, it was relatively easy for the political power to gain control over the barracks. There was not much difficulty in controlling the barracks limited in number and gathered in certain places. These were, to put it in the words of Erving Goffman, a kind of "total institution" (Goffman 1978, 376-380), that is, the places where the power almost established complete control over them. On the other hand, the house was not a public place where large numbers of people with different identities could come together, but a private place.

Moreover, the house's architectural style in the Ottoman Empire did not allow such publicity, which does not even have a living room. On the other hand, marketplaces were not closed spaces where people could talk in an organized manner but open spaces whose main functions were shopping (Hattox 1998, 111). In such an environment, coffeehouses emerged as places that allow many different segments of society to come together and put forward various forms of expression, which is discussed below, apart from religious requirements.

Although the coffeehouse was a male space, it ultimately functioned as "bringing together outside the restrictive structures of social, occupational and familial hierarchies" (Desmet-Grégoire 1999, 21). In Desmet-Grégoire's quotation from a French author, the coffeehouse is "as a real sieve that rebalances the social environment," "a hall where men meet before returning to their home" (1999, 21). An English writer said, "Since there are no clubs and associations in the East, coffeehouses are the main meeting centers for middle- and lower-class people" (Georgeon 1999, 78).

Another essential feature of the coffeehouses was that they could be a real threat to the political power in the Ottoman social structuring. Technically based on the distinction between rulers, in the words of Şerif Mardin "patrimonial" (Mardin 1969, 92-3), in Niyazi Berkes's words "despotic" or "sultan-state" (Berkes 2002, 25-32) In a state structuring, coffee houses contained threatening dimensions against this structuring of the state. The coffeehouses were an interface that could disrupt the order. The rulers and the ruled could meet in this space.

To sum up, there is a distinction in the Ottoman Empire defined around the ruler and the empire. The concept shaped as "public" in the West enters the Ottoman Empire in the 19th century as an area dependent on a ruler. Therefore, it is still perceived as a state-related space in Turkey.

In the 17th and 18th centuries, writers, nobles, and bourgeois, who argued with each other over what they read in salons and coffeehouses, which became widespread in big cities such as Paris and London, provided the formation of the literary public. At the end of the 17th century, the press impacted this formation by ensuring that everyone had regular access to news and information and brought previously undisputed issues to the public. In this context, the literary public has laid the groundwork for politics, which is the fundamental characteristic of the bourgeois public (Habermas 1997, 100-101).

At the end of the 18th century, depending on periodic regulations, the feudal elements were divided into public and private. With the separation of private household expenses of the ruling prince from the treasury, the distinction between private and public emerged for the first time (Habermas 1997).

Those who can freely discuss their ideas in the public space, shaped in the West, are highly social welfare people. Sections dealing with trade and various professions create a private space separate from the state by establishing urban corporations and regional organizations (Habermas 2004). Hence, Habermas's definition is formed within the framework of the bourgeois public sphere.

Following Habermas's definition, various segments of the society in Europe, such as minorities and immigrants, open up discussions of having more rights in the social area. In 1972 Oskar Negt and Alexander Kluge criticized Habermas's definition for shaping by the bourgeoisie. They defined the public space as "the proletarian space where the struggle is resolved through non-war means."

In his book "The Fall of Public Man," which he produced in 1977, Sennett says that while the public space should remain impersonal, certain parts of the society formed by political figures are realized as a space of relationship.

Returning to Habermas, it is seen that he reduces the public sphere comprised of three basic actions (Habermas 2004). These:

1. Normative actions: To act per the majority codes of the society / legal use of authority.
2. Strategic actions: People act towards their goals.
3. Communicative actions: A shared space for conversation/discussion where people come together and communicate.

In all these interdependent relations, communicative action comes to the fore for Habermas because Habermas considers this action to mean "political speech," and communicative actions become the most critical factor in forming the public sphere. Since it was defined, all these communicative actions take place among users and through media.

Human is not a being that can live in isolation from other humans and its environment. The relations mentioned above of society that emerge from the relationships and interactions of people take place on a plane that we call "space." Space, a plane perceived and evaluated by its inhabitants, is a complex system with geometric and social, economic, psychological, and political dimensions. Therefore, space is a phenomenon constantly created in the realm of existence and reformed by the minds.

> “Because space means synchronicity; it means investigating the coexistence of different, most intersecting, and not necessarily straight lines, rather than a single line on which we can establish all the facts and relationships. To investigate the conditions of coexistence of phenomena and relations directly means to reconstruct space as an object of research (...) When you accept that the occurrence of a phenomenon here or there on the space can have an effect on that phenomenon and may lead to different consequences, you can begin to grasp the importance of space. . The space created by human action constitutes the context in which this action takes place… ”(Işık 1994)

4.2. DEFINITION OF ‘PUBLIC SPHERE’

> "Does the public sphere, as it is envisioned, really correspond to the collective production, or is it the kind of counter production that blocks the production and self-presentation of the public?" (Yağız Ay 2016).

In this part of the research, the definition of the public sphere is included. Whether Habermas's explanation of the public sphere means looking at the space through an interface is problematized. The identifiability of the means of communicating with the digital world as an interface is questioned. In this section, the public sphere is perceived as an area where class differences disappear, and ideas are essential.

Seyla Benhabib offers a procedural definition of the public sphere. The "public sphere" is any space transformed at a given time into a space of political action through public appeal, speech, and persuasion. In Benhabib's formulation, "public space" is not just "open" space or physical, absolute, geographical, or physical space. This represents an approach to the public sphere that contradicts the view of the public sphere as material, empirical, and tangible instead of what she sees as more conceptual and virtual. In Benhabib's procedural definition, these areas are not clearly distinguished (Benhabib 1996).

Jürgen Habermas made the definition of the public sphere for the first time in 1962. According to Habermas, the public sphere is defined as "the sphere of life in which private individuals reason around a common issue that concerns them, enter into a rational discussion, and as a result of this discussion, the means, processes, and spaces by which they form a common opinion and public opinion about that issue" (Habermas 1962).

According to Habermas, the public sphere is an everyday speech/discussion space where citizens come together and communicate. Habermas means a sphere in our social life where the public sphere can form something similar to public opinion. In this sphere, all citizens act as a public body when they can discuss issues of general interest with guaranteed freedom to gather, organize, express their opinions and publish them. Thus, they ensure the existence of the public sphere (Habermas 2015, 95).

The critical principle of publicity is the concept of public opinion. In the West, the notion of the public arises in the public sphere, where Habermas claims it "first" evolved as an intermediate form between the state and society (Peter Hohendahl and Patricia Russian, 1974, 46). This idea of public opinion, which Habermas linked with the concept of the public sphere, may be traced back to Kant's writings on enlightenment. According to this view, the personal opinions of private individuals can be transformed into public opinion through a process of rational-critical discussion that is open to all and free from pressure (John B. Thompson, 1993, 178; Lincoln Dahlberg, 2005, 112-3).

Habermas' study of the public sphere concentrates on the fact that private individuals, whom he refers to as the "bourgeois form," get together in a certain way, set aside all social distinctions, and engage in critical debates using their minds (Dahlberg, 2005, 111-2; Harold Mah, 2000, 156). At first, the debates started on literature then turn towards the political sphere defined as in the domain of the state. With political problems being the subject of critical debate, the public sphere focuses itself not only in opposition to the state but above even the state. As the area of pure intellect, the public sphere begins to establish itself as an authority that even the state must acknowledge (Mah 2000, 157). Habermas argues that in the 19th century, with the intervention of the state and commercial organizations, especially the commercialized media, in the public sphere, the public sphere was feudalized again and assumed a representative character (Thompson, 1990, 109-110).

It is problematized that communication is everywhere and can be constructed with anything because communication is present at every point and focuses on making sense of something. It tries to organize, interpret and subordinate everyone and everything to its system. There is too much communication in the current public space, claiming that there is not enough creativity. We talk about the coexistence of meaning, creativity, and event, not communication or mutual reflection of individuals' subjective identities.

> “You will be organized, you will be an organism, you will articulate your body—otherwise you're just depraved. You will be signifier and signified, interpreter and inteipreted—otherwise you're just a deviant. You will be a subject, nailed down as one, a subject of the enunciation recoiled into a subject of the statement—otherwise you're just a tramp.” (Deleuze & Guattari 1987, 159)

5. A PERSPECTIVE ON NEW GENERATION PUBLIC SPACE

The future possibilities of the public sphere are thought to form beyond typical contexts. Nowadays, we are still classifying the types depending on binary oppositions, so the different types of public spaces are urban and rural, physical and virtual. The various effects can have on daily experiences make the new generation public space an increasingly specialized research topic. This chapter addresses how everyday experiences may change in the future, raising voices beyond the traditional discipline of architectural criticism.

In this part of the research, reading the symbiotic Chthulucene relationship over urban space is considered. Consistency in argumentation; from learned statuses, hierarchies, titles, and beyond, is considered the possibilities of a space manifestation in which all are drawn to multidimensional spatialization on a kind of flat surface. In the outline, while thinking about the reflection of this information to space, the Society 5.0 foresight will establish a connection to what kind of discussion platforms the use of digital information commons as a communication tool can create. It is planned that the field of discussion will become more apparent as the concept of the new generation is preserved when the "new generation" tools help. Subsequently, the new generation public space will be tried to be defined with examples in temporal line.

Why is technology related to Chthulucene, a biological understanding? Chthulucene is considered as a fusion of real science, relations, hypothetical science, existence, and futurism. There are many futures, hypothetical futures or infinite futures. The future perception is related to time perception so it is not possible to define an exact future. So, Chthulucene can be perceived in various future understanding. In the thesis, this future has been accepted specifically for the understanding of the future, which can be understood with the scientific knowledge that human has produced so far. This accepted future is evaluated in proportion to the development of technology. In this context, to understand the technological context of the public space, civilization levels of humanity are researched.

Human continues to develop scientifically and technologically. This is a hope for the civilization that we can hold onto. With this hope, the effort to reach technological perfection brings with it scenarios of destruction and disaster. In this case, considering the question of how human development can be measured as a civilization, it is necessary to create a scale that will enable us to scientifically measure our technological capabilities. One of these criteria is the Kardashev Scale.

In 1964, Soviet astrophysicist Nikolai Kardashev defined three levels of civilization, based on the order of magnitude of power available to each. The Kardashev Scale is a method of measuring the technological progress of a civilization based on the total energy consumption of the civilization. The scale is exponential and hypothetical, examining energy consumption on the cosmic scale (Kardashev 1964). It was proposed by Nikolai Kardashev in 1964 and modified by Carl Sagan in 1973 as the standard human uses currently. In addition to energy consumption, factors such as data usage, travel options, and subtype forecasts are also considered when classifying civilizations (Sagan 1973).

Kardashev proposed three base scales in his article Transmission of Information by Extraterrestrial Civilizations (Kardashev 1964):

Type I: Capable of controlling entire energy of its planet efficiently.
Type II: Capable of controlling the entire energy of its host star and travels through the solar system.
Type III: Capable of controlling the energy at the scale of its entire host galaxy.

Overtime, Kardashev Scale was expanded, with Type 0 Civilizations (human who does not yet need to master the geothermal energy of their home planet) and Type IV Civilizations (capable of using energy at the scale of the universe; can create galaxies, manipulate spacetime) are added (Kardashev 1964). Then cosmologist and astrophysicist Carl Sagan proposed a mathematical formula that defines intermediate levels using extrapolation based on the original three categories (Sagan 1973):

$$K = \frac{\log_{10}(P) - 6}{10}$$

Where K is the evolution of civilization on the Kardashev Scale and P is the total available power of civilization in Watts. For example, the average global electricity consumption in 2008 was 16 terawatts=1.6 x 1E13 W by Sagan's formula (log(1.6*10^(13))-6)/10 = 0.72.

Kardashev believed that a Type IV civilization was impossible, so he never exceeded Type III (Kardashev 1964). Type IV civilizations harness the power of the universe and are virtually immortal and omnipotent. Such progressive civilizations have the potential to solve mysterious dark matter and manipulate the structure of space-time itself. These skills include instantaneous matter-energy conversion, teleportation, and time travel. Moving faster than the speed of light allows for insanely fast transportation. Human species are so advanced that humans living elsewhere look like aliens when they set foot on another ungrown planet. The human species can reach hundreds of quintillions (Sagan 1973).

Type V civilization would have been advanced enough to escape from the original universe and explore the multiverse. Such a civilization would have mastered the technology to the point where it could build a custom universe. When Type V civilizations have been reached, they will master various cosmic physics and gain almost complete control over all the basic parts of nature. The Kardashev scale looks incredible and somewhat impossible from a human's perspective in this day and age, but it is possible for the future. Physicist and futurist Michio Kaku claims, if humans increase their energy consumption at an average rate of 3 percent each year, they may attain Type I status in 100 – 200 years, Type II status in a few thousand years to ten thousand years, and Type III status in 100,000 to a million years.[23]

Humankind must change its energy use. Countries should start investing in less military power, more space, and more efficient engines and renewables. Together we can create a better future for ourselves. Humans have only five sense organs. Currently, human cannot even see ultraviolet rays. Who knows what is going on around them, what interactions are happening and they are not aware of it? Without a social evolution & education level, without human behaving like a whole commune, Type I is very unlikely to occur. This is where Chthulucene comes into play. The perception of acting together on the path of civilization. It does not seem realistic that human will act alone on the way to this level of civilization.

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[23] https://mkaku.org/home/tag/kardashev/ Retrieved: 03.04.2021

Type 0	0 –1E16 watts	Pre-planetary	Extracts its energy, information, and raw materials solely from planetary resources, and can travel beyond its home planet.	Humanity (Real Life) (Type 0.73) Holy Britannian Empire (Code Geass)
Type I	1E16 –1E26 watts	Planetary	Can use and store the equivalent of all of the energy in and reaching its home planet, and become interplanetary.	The United Federation of Planets (Star Trek) The Imperium of Man (Warhammer 40,000) (Borderline Type II)
Type II	1E26 – 1E36 watts	Stellar	Can harness the total energy equivalent of an entire star's output, and become interstellar.	DAoT Humanity, Pre-Fall Aeldari, the T'au Empire and The Necrons (Warhammer 40,000) The Old Republic (Star Wars) Humanity (Blame!)
Type III	1E36 – 1E46 watts	Galactic	Can control energy equivalent on the scale of an entire galaxy, and become intergalactic.	The Forerunners (Halo) The Culture (The Culture)
Type IV	1E46 – 1E56 watts	Universal	Can control the energy equivalent of its home universe, have instantaneous travel, and manipulate the fabric of spacetime.	The Precursors (Halo)
Type V	1E56 – 1E69 watts	Multiversal	Can escape their universe of origin and explore the multiverse, and have time travel to the future.	The Celestials (Marvel Comics) The Q (Star Trek)
Type VI	3.9 x 1E69 watts and above	Megaversal	Can exist in an infinite amount of simultaneous multiverses and instances, with unlimited spacetime travel.	The Celestials (Marvel Comics) The Q (Star Trek)
Type VII	Immeasurable	Omniversal	God-level traveler and manipulator of all universes, multiverses, and megaverses.	The Time Lords and the Daleks (Doctor Who) The Downstreamers (Manifold) The Beyonders (Marvel Comics)

Table 5.1: Civilization categories of Kardashev Scale, the table represents the most powerful civilization encountered in science fiction, beyond the original three types and the two added types

Considering the development of human on the Kardashev Scale, the thesis goes back several hundreds of quintillions years back; to the present and focuses on Society 5.0, the predicted new mode of production of human.

5.1. SOCIETY 5.0

The built environment is a form of technology, relatively like a gigantic computer that users step inside. The integration of a built environment's software and hardware is critical to creating a dynamic, impactful space. The questions: What is the Society 5.0 tools in this part of the research? How can it be imagined to be a more creative part of the experience? What types of design and rethinking interfaces can be produced?

The basic scheme of Society 5.0 is to collect data from the "real world" and process it by a computer and apply the results to the real world. When people use the term "information society," they refer to a society in which each system collects data, processes the data, and then applies the results to a specific real-world environment. Society 5.0 context with thesis comes from this principle. To discuss Society 5.0 fiction in a nutshell, the modes of production must be mentioned. Modes of production express each of the ways of products designed in the life orders created by the human species throughout its historical development. With the cumulative increase in the knowledge created by the species, the forms of production are changing. In the historical framework of production forms, each change in production mode is called the industrial revolution.

The first industrial revolution (Industry 1.0) is marked by mechanical production systems powered by water and steam. The second industrial revolution (Industry 2.0) ushers in mass production powered by electricity. Industry 2.0 is a manufacturing process based on electrical systems. With the digital revolution, electronics and IT growth were further mechanized in the third industrial revolution (Industry 3.0). It is a production process based on Industry 3.0 automation systems. In the fourth industrial revolution (Industry 4.0), production based on cyber-physical systems comes into play through IoT (IoT). Industry 4.0 is a production process based on the internet. Moreover, finally, Society 5.0 is defined as a "super-intelligent society" in which cyberspace and physical space (real society) are highly integrated.

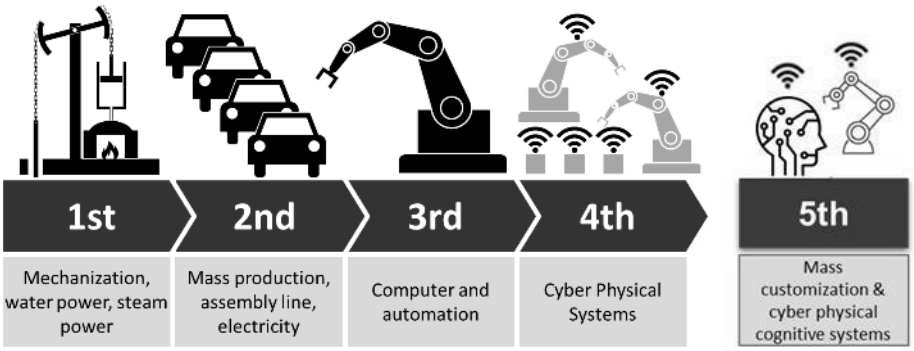


Figure 5.1: Change of production modes [24]

The first mode of production was the Industrial Revolution, which took place in 1784 with mechanical production facilities powered by water and steam. The first industrial loom and the first steam machine designed by James Watt are seen in this process, in which energy-operated machine production is used instead of tool production.

Due to the overwhelming speed of machine-based production against workforce production, the production capacity has increased rapidly, and mass production has been transitioned. Thus, there is a rapid change in production with the Industrial Revolution, from tools and workshops to machines and factories. In the new generation naming, industrial revolutions began to be coded, so the Industrial Revolution began to be mentioned as Industry 1.0. Industry 1.0 is a manufacturing process based on mechanical systems.

Considering its historical time, it is seen that the intervals between industrial revolutions are getting shorter. This situation is thought to be related to the increased rate of knowledge, as 2n. For example, it took 120 years between the Industrial Revolution (Industry 1.0) and 2.0, where mass production began with steam engines, 70 years for Industry 3.0, where computers and automation systems were introduced, and only 30 years for Industry 4.0 with the introduction of information technologies via the internet. After just 20 years from the last change, a new mode of production, Society 5.0, has been proposed.

[24] Source: www.frontiersin.org Retrieved: 18.10.2019 & Arslan 2019.

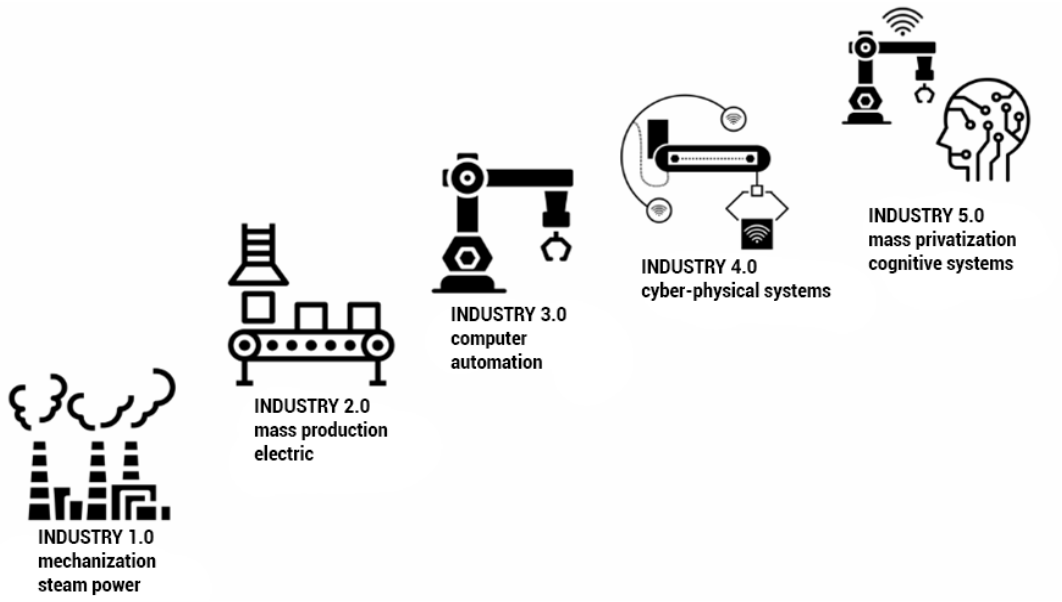


Figure 5.2: The transformation of the mode of production [25]

Unlike other forms of production, the 5th mode of production is called "Society," and it recommends reconsidering the foundations of thought that constitute the contexts of the constructed modes of production. For example, focusing on machine and technological development in the development of production processes causes results that may cause the human factor to be ignored in the social development and human processes.

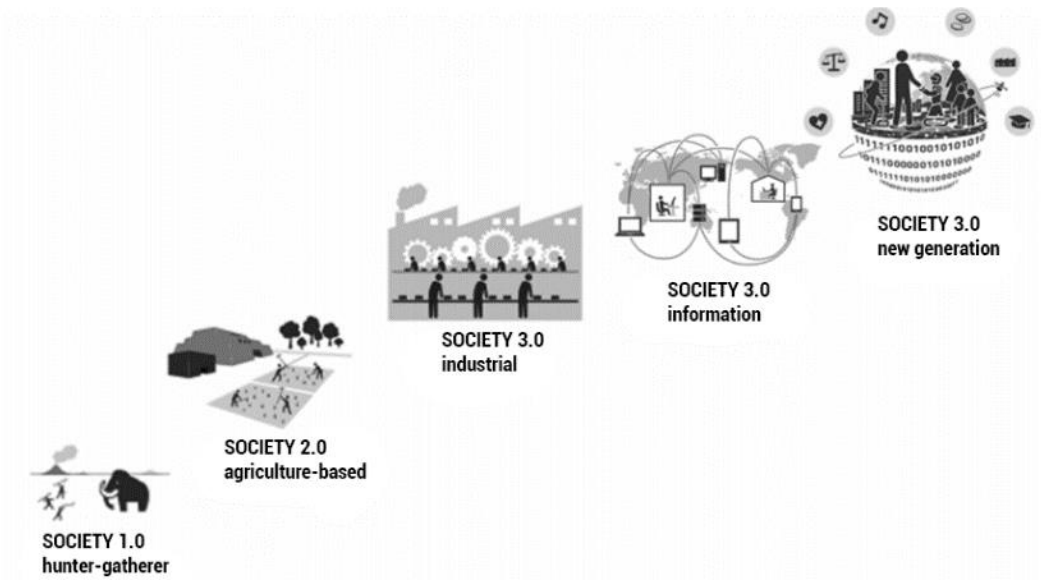


Figure 5.3: The transformation of the society[25]

[25] Source: Workshop. Endustri 5.0::Mekan X.0 Master Studio, 2019-2020 Fall, History, Theory and Criticism in Architecture Program, Istanbul Bilgi University, Istanbul, Turkey.

Society 5.0, which follows our current mode of production, Industry 4.0 (IoT - Internet of Things), was announced by Japan at CeBIT 2017. According to the statement made at the event, the route to the super-smart society was designed as "Another Perspective." Society 5.0 has emerged at a point where The Internet of Things, cyber-physical systems, AI (artificial intelligence), VR (virtual reality), AR (augmented reality), big data, and all available technologies interact. However, Society 5.0 is not presented as an only technology-oriented approach. Based on the idea, it is stated that to survive, human characteristics should be emphasized, and people's preferences should be given priority.

Society 5.0 will have a system that will operate across society in an integrated manner. To this end, the system must collect a variety of large amounts of real-world data. This data must be processed by complex IT (Information Technology) systems, such as artificial intelligence because only these IT systems can process such a large amount of data. Society 5.0, the resulting information will guide the operation of air conditioners, generators, or railways and directly shape our actions and behaviors. In short, Society 5.0 will have an iterative cycle in which data is collected, analyzed, and then transformed into meaningful information and then applied to the real world; Furthermore, this cycle operates at the level of the whole of society (Atsushi Deguchi, Chiaki Hirai, Hideyuki Matsuoka, Taku Nakano, Kohei Oshima, Mitsuharu Tai, Shigeyuki Tani, 2018).

The other perspective of Society 5.0 is "to merge physical space (real world) and cyberspace." Cyberspace refers to the digital space where real-world data is collected and analyzed to arrive at solutions. The term was coined to describe a fictional or virtual area where a large amount of raw data can be freely accessed and turned into useful information, which can then be shared with others (Deguchi, Hirai, Matsuoka, Nakano, Oshima, Tai, Tani, 2018).

The infrastructure of this space is a large number of computer networks. However, as far as Society 5.0 is concerned, cyberspace means more than space for exchanging large amounts of data. It also means the space created by computer networks to analyze problems and simulate real-world solutions. When Society 5.0 computer systems analyze raw data from

the real world, they must use a structure that reflects the real physical world. The more we want to satisfy people's needs for happiness and comfort, the more sophisticated the network model will be (or closer to the real world). The ultimate goal of Society 5.0 is to incorporate real-world models into cyberspace so that they can provide highly detailed solutions to real-life problems. So what is physical space? Physical space refers to the real world from which raw data is collected and applied. Some people may interpret the "real world" as everything real, including computer systems. Therefore, government documents use the descriptive word "physics" to distinguish this space from cyberspace (Deguchi, Hirai, Matsuoka, Nakano, Oshima, Tai, Tani, 2018).

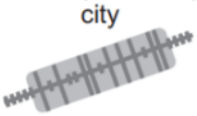
	Society 1.0	Society 2.0	Society 3.0	Society 4.0	Society 5.0
Society	Hunter-gatherer	Agrarian	Industrial	Information	Super smart
Productive approach	Capture/Gather	Manufacture	Mechanization	ICT	Merging of cyberspace and physical space
Material	Stone・Soil	Metal	Plastic	Semiconductor	Material 5.0*
Transport	Foot	Ox, horse	Motor car, boat, plane	Multimobility	Autonomous driving
Form of settlement	Nomadic, small settlement 	Fortified city 	Linear (industrial) city 	Network city 	Autonomous decentralized city 
City ideals	Viability	Defensiveness	Functionality	Profitability	Humanity

Table 5.2: Contextualizing Society 5.0. Categories. Source: Research conducted by the University of Tokyo’s Material Innovation Research Center

Society 5.0 is a threshold that defines the interaction of tools and tools that enable the reflection of information to space by analysis. Society 5.0 tools are digital fabrication, big data, blockchain end, artificial intelligence, augmented reality, virtual reality, urban texture/landscape, transportation/logistics, re-functioning, new-age materials, and social practices.

5.2. THE IDEA OF DIGITAL KNOWLEDGE COMMONS

> “Commons is an awkward word in the English language. The same word is used for both the singular and plural forms. (Hess, Ostrom 2007)

The digital knowledge commons is the conceptualization of the knowledge outputs of public sphere. In this part of the research, digital knowledge commons is examined.

Knowledge and the research of knowledge as a commons are still at their early stage. Knowledge Commons is an awareness that arises suddenly. It is thought that only a few thinkers before 1955 saw this link between the lines. New usage of the "commons" concept has begun to be seen with the transformation of the knowledge commons discussions. What will happen with the sharing of information resources on the internet by user communities becomes a controversial issue? As Charlotte Hess mentioned, discussions on knowledge commons are still in their infancy (Hess, Elinor Ostrom 2007).

Ostrom says that natural resources must be commons. The consequences of significant issues, including globalization, complexity, westernization of knowledge, indigenous knowledge and rights, and growing computing waste on knowledge commons, cannot be disputed. Therefore, it does not seem possible to quickly discuss the knowledge commons by reducing them to a natural resource. However, considering that its source is human, the concept of private property remains binding for the knowledge commons (Hess, Ostrom 2007).

When looking at the commons discussion in its relationship with nature, it can be thought about transferring the lessons learned from environmental movements to the knowledge commons ecosystem or researching the natural resource commons to the knowledge commons. However, knowledge commons is a complex concept that will require commons, jurists, social scientists, librarians and informatics professionals, intellectuals, and more to work together to protect it (Hess, Ostrom 2007).

As the debate on knowledge commons was sprouting, it was realized that the knowledge distribution channels on the internet were neither private nor strictly public. It is a fact that

the dilemmas observed in the discussions about the rapid increase in the use of digital knowledge have become conceptualized through the concept of the commons (Hess, Ostrom 2007).

When the discussion contexts of knowledge with the concept of the commons are examined, it is seen that there are various approaches. Some information scientists have made advances in virtual communities and the commons (Howard Rheingold 1993; David Brin 1995; Hess 1995; Peter Kollock and Marc Smith 1996). Other information scientists have explored common dilemmas such as Internet congestion and free surfing (Bernardo A. Huberman and Rajan B. Lukose 1997). Commons has become a fashion for digital information that is closed, commodified, and over-patented (R. Anthony Reese 1995; Ostrom 2003). Although partners are classed as "digital," "electronic," "information," "virtual," "communication," "intellectual," "internet," or "technology," all of these notions drive the newly shared global information repository (Hess, Ostrom 2007).

Digital knowledge commons are public platforms for the sharing and communal ownership of knowledge resources and knowledge technology. Resources are frequently generated to be used by the community for which they were intended. The community has free and direct access to knowledge because of digital commons (Hess, Ostrom 2007). In general, knowledge created in the digital commons is intended for usage in the digital commons through various types of licensing, such as the GNU General Public License and various Creative Commons licenses.

The distinction between digital commons and digital resources is that the human community interaction activities that comprise them may interfere with joint resource administration and development (Hess, Ostrom 2007). Wikis, open-source software, and open-source licenses are examples of digital commons. The Free Software movement, launched in the 1980s by Richard Stallman as an organized endeavor to create digital software partners, was one of the earliest examples of digital commons. Stallman's campaign was aimed to encourage the usage and distribution of free software and was inspired by the 1970s programmer culture of software development through mutual help (Mayo Fuster Morell, 2010).

Stallman devised the GNU General Public License to prevent the movement's software from being misused. To ensure that the program remains digital, free software distributed under this license must be released under the same license, even if developed or updated.

Mayo Fuster Morell proposed a definition of digital knowledge commons as: "Digital commons are defined as an information and knowledge resources that are collectively created and owned or shared between or among a community and that tend to be non-exclusive that is, be (generally freely) available to third parties." (Fuster Morell 2010). Thus, there is use and reuse rather than commodity transaction, and the community of individuals who develop them might intervene with the administration of their interaction processes and shared resources. Wikipedia would be a great example of this. Wikis contribute significantly to digital communities by providing users with knowledge while also allowing them to produce and update content. Wikis can collect and compile information, resulting in a rich source of information for the community to use (Graham Murdock 2017).

> "If you look at the internet today, you can see that it is becoming more and more dominated by a handful of companies who are in the business of making money; Google, Amazon, Facebook. But there is an alternative: What we see also online is people coming together to make things collaboratively that they are offering at no charge." (Murdock 2017).

Public broadcasting is increasingly making its possessions online. Hence, the idea of digital knowledge commons is to bring these two non-commercial parts of the internet together. Public resources create a tremendous resource that will enable people to access things they have never had before (Murdock 2017).

Digital technologies allow us to combine an incredible range of materials. The question is how do we organize it, finance it, and stop it from being thoroughly commercialized (Murdock 2017).

The use of digital knowledge commons is predominantly spread around the world by universities. Some universities have created tools for organizing digital knowledge commons and using digital information commons as a design tool in a university environment such as a campus. UMaine University and Penn State University are examples of organizations that actively use digital knowledge partners.[19]

Digital Commons @UMaine defines itself as a green, open-access, corporate knowledge repository that offers the opportunity to bring together the University of Maine's literary, scientific, artistic, and scientific research outputs online. The pool provides rare, primary source material from the Fogler Library private collections archives, academic journals, and peer-reviewed journals. The repository is compliant with US Federal Government section 508 guidelines and search engine optimized to provide free web-based access to researchers worldwide.[26]

Digital Commons UMaine contributes to a digital collaborative network containing more than 1 million full-text scientific articles from 349 institutional pools curated by university librarians such as Digital Commons UMaine. Peer-reviewed journal articles, book chapters, electronic theses, worksheets, conference papers, photo archives are all part of this network. The Digital Commons Network provides real-time lists for the most popular articles, authors, and institutions among contributors to all discipline partners.[19]

In another example, in 2008, Penn State University students developed a knowledge use technique on the campus area. Based on a survey of Penn State students across all campuses in 2006, an increasing number of students were consuming and producing digital media. This included both coursework and content production for social websites such as Youtube. However, not every campus offered easy access to the technology required to create quality digital media.[27]

To meet this challenge, Penn State University created Digital Commons. Digital Commons is an initiative that creates a common platform for recording, editing, and sharing audio and video content on Penn State campuses. Trained multimedia professionals support facilities and equipment. With Digital Commons equipment and software, students can prepare presentations, make interviews, record performances, edit their work, and share the finished product. The faculty can assign digital media projects in their courses, knowing that they have access to professional equipment and studio space.[20]

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[26] Source: https://www.youtube.com/watch?v=jydsf3vgnt8 Retrieved: 20.04.2020
[27] Source: https://libraries.psu.edu/about/departments/knowledge-commons Retrieved: 20.04.2020

The digital commons facility on each campus includes professional audio and video production equipment and high-end editing stations. In addition, faculty and students are provided with a large storage area for media files used in their projects. In addition to hardware, Digital Commons spends one day a month on each campus. While there, the staff provides training and mentoring for the faculty. This tutorial focuses on using the equipment and teaches the Penn State community the best educational uses of digital media. [20]

Teaching and learning with technology staff work for each campus to locate a facility and set a timetable for setting them up. Digital Commons facilities were established to have 20 locations by August 2009. In 2020, Penn State Digital Commons Digital Commons renamed it Media Commons and offered much newer resources.

Nowadays, with technological advances, audio and video production and audio and video editing studios are moving to online platforms accessible by standard devices such as smartphones, using almost half of the world's population. These statistics support that as the spatial transformation forms evolve with technological possibilities, most digital media products will be offered to the public space.

> "The current 7.7 billion population means that the rate of smartphone usage is 45.4 percent. In other words, more than four out of ten people in the world are currently equipped with a smartphone."[28]

As the core of the idea of the digital commons, defined by Graham Murdock, digital technologies allow a wide range of materials to be put together. How to organize it, finance it, and stop its commercialization is that, in practice, digital knowledge commons are turned into a commodity available for consumption by Society 5.0 tools.

Society 5.0 strengthens users' communication with data, with the possibility of managing big data. By enabling spatial transformations with the cooperation of artificial intelligence and augmented reality, enables users' sudden requests and needs to communicate with space.

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[28] Source: [Website]. *How Many People Have Smartphones in 2020?* <https://www.oberlo.com/statistics/how-many-people-have-smartphones>. [Accessed May 15, 2020].

This effect of digital knowledge commons leads individuals to claim the city as a standard, collective coexistence.

The tragedy of commons is the core idea on the commons discussions, so it needed to be also mentioned in this research. The concept of the tragedy of the commons argues with the classical economic approach: When individuals overuse a public property independently of the community, it results in complete exhaustion of the property.

Comparatively, in the digital world, public goods are unrivaled and essentially endless. However, the nearly infinite supply of a digital public good can be tragic, but differently. For example, the rise of free crowdsourcing digital Wikipedia has eliminated billions of dollars in economic value in the encyclopedia sector. Despite this apparent value breakdown, declining prices for many digital items look to be a fantastic opportunity. Firms increasingly rely on users to shape future goods, provide value to customers, and develop critical software for the firm's manufacturing process. This tendency causes firm boundaries to erode and the nature of the firm's inventive operations to shift. It demonstrates that digital commons can help create significant economic value, but it is difficult to quantify using traditional economic methods that rely on price to express value. These findings have significant strategic implications for managers and policymakers as firms increasingly collaborate with external communities and ecosystems to innovate and create value (Murdock 2017).

At this point, what happens when users in the public domain have the opportunity to do whatever they want? For this, the core component of Society 5.0, machine learning, can be considered an optimum solution. Machine learning tools go to the field and develop new combinations based on desires, needs, and behavior patterns. If some online resources such as YouTube were not completely open and had a system to manage information gathering, users would have drowned in content and probably would not find material based on their interests. Nowadays, regardless of quality, the content that does not concern users is much more than that. Discussions of digital knowledge commons are ongoing; because they provide communication, rule, accountability, common pool resources without penalties for users who violate the rules. The system turns into an open access system where users can trust each other and work together.

5.3. WHAT IS REAL? NEW GENERATION VIRTUAL SPATIALIZATION

The current designs and applications were researched to manifest the expected spatialization between the digital tools of Society 5.0 and the digital knowledge commons. Considering the transformation experienced by humans with the introduction of the current production mode IoT into life, major changes are expected on the subjects of digital fabrication, big data, blockchain end, artificial intelligence (AI), augmented reality (AR), virtual reality (VR), urban texture/landscape, transportation/logistics, re-functioning, new-age materials, and social practices as digital tools of Society 5.0 (or whatever the next new mode of production).

The main tool, which is thought to have an effect like the effect of the internet, is virtual reality, which re-questions the reality humans are in, and blockchain end, which promises that human will undergo political and economic metamorphosis, and whose effects are partially felt already. Virtual reality already has a remarkable user population with the digital gaming world dominated by virtual spaces and there is a small conflict between the blockchain end. These two worlds and other outputs of Society 5.0 are in a unceasable race to become the new world to replace the internet (Roger James Hamilton 2021).

Amid all the contention, the metaverse emerged, which was predicted to replace the internet. Metaverse can be thought of as a collectively usable virtual space or a virtual universe planned to be created by combining three-dimensional virtual spaces. Metaverse points to a design world that can be summarized as the internet transforms into a three-dimensional universe in which people are content by not just looking at certain things, but are also active in it. Former Amazon employee, new technologies investor Matthew Ball claims that the metaverse will replace the internet (Ball 2020).

Considered the next iteration of the internet, the metaverse is where the physical and digital worlds merge. As a further development of social technology, metaverse enables digital representations of people and avatars to interact in different environments and spaces. Metaverse is an endless interconnected virtual community with virtual reality (VR) headsets, AR glasses, smartphone apps, and other devices, providing space for whether you're trying on work, offices, concerts, sporting events, or clothing.

It is predicted that the metaverse points to a larger world than the internet and will rapidly replace the internet. Search-based, 2D internet is being replaced by this 3D immersive world that mirrors the existing world. Metaverse is supposed to change how humans connect, live, learn as the internet did in 1995. Metaverse is coming to integrate human life as a mode of production much faster than the internet (Hamilton 2021).

By 2024, there will be an estimated 1.7 billion mobile AR users worldwide, up 1.5 billion from 200 million in 2015, according to the current data. By 2022, there will be an estimated 1.1 billion mobile AR users worldwide. In contrast to VR, which creates an artificial environment, AR simply makes use of the existing environment by overlaying new information on top of it. In AR, the information about the surrounding real world is made available to the user for information and/or interaction through the use of headsets. By 2023, it is anticipated that global AR headset shipments will reach over 30 million units, over 12 times the number expected to be shipped in 2020.

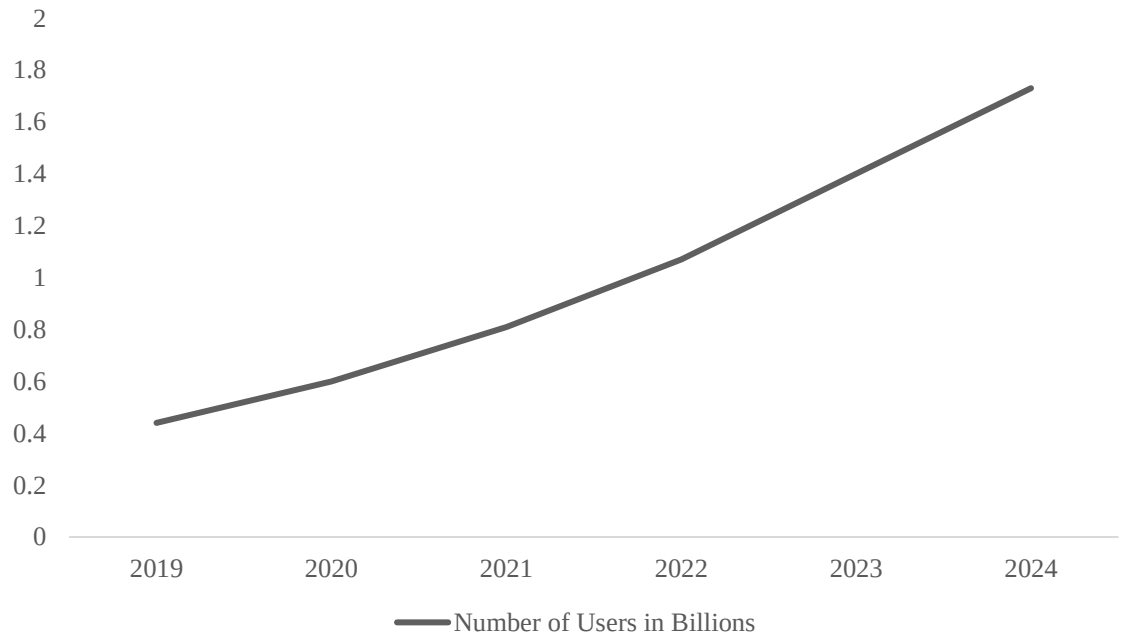

Table 5.3: Number of mobile augmented reality (AR) active users worldwide from 2019 to 2024[29]

[29] Source: https://www.statista.com/statistics/1098630/global-mobile-augmented-reality-ar-users/ Retrieved: 10.04.2021

Augmented and virtual realities are so critical to humanity's next stage of collective digi evolution, according to Mark Zuckerberg. Although he is not a researcher, he can be considered one of the opinion leaders on this subject considering the data and human profile under his control. Considering daily usage and user-generated content created each day His company Facebook has more users than any other platform on earth (Ball2021).

In my approach, metaverse almost presents a dystopian world. It promises a reconstructed universe in which digital parcels are purchased and "developed", rented, events are held on, advertisements are given, and all kinds of real-world profits and social relations are transferred, making it possible to move those who are not "immovable" in an endless universe. Currently, there are already infinite universes in the game world, but all of them are self-enclosed, temporary universes where the first to arrive take advantage and users cannot gain advantage with their financial capital except for their personal time. The metaverse should be an open, diverse, and decipherable ecosystem.

At Metaverse, not just the talented companies and tech-savvy individuals who are trying to make games and movies, all the users need to be able to create and deliver the content and experience. In this context, Epic took over Twinmotion in April 2019.[30] The company is collaborating not only with game engineers and designers but also with architecture, construction, urban design, landscape professionals to create this immersive digital environment realistically in seconds using Unreal. The focus was on providing intuitive symbol-based software that could be created.

As the Founder and CEO of Epic Games, Tim Sweeney claims that there are three ways to create in Unreal: the standard "coding" engine itself, a simplified "visual" Twinmotion, and Fortnite Creative Mode for the users who are inexperienced in programming and design. Each way may become more proficient, user-friendly, and more integrated. The metaverse comes from a network of platforms, equipment, and technologies that reluctantly work together and embrace collaboration. In a world with visions, technologies, and capabilities. It is the product of a relatively chaotic process (Ball2021).

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[30] Source: https://venturebeat.com/2019/05/13/epic-games-acquires-twinmotion-architecture-software-then-gives-it-away/ Retrieved: 05.04.2021

Considering the architecture of the metaverse world, there may be a relation between architecture and time. The questions like, what kind of architectural artefact is short term and what kind of architectural artefact is long term, can be asked about what kind of architectural design and execution practice is built in the metaverse world. Currently, there are the first virtual exhibition structures to be designed by architects, where the world's most expensive digital artwork will be exhibited.

Beeple alias Mike Winkelmann's digital painting Everydays: The First 5000 Days (see Figure 5.4) is licensed as a non-fungible token (NFT) and sold for $69,300,000 on March 11, 2021. This is huge game changer data because Mike Winkelmann, whose print work has never been sold for even $100, has become the most valuable artist alive with only this sale. The new owners are working on an architectural project of virtual exhibition space for this most expensive artwork in the metaverse.[31]

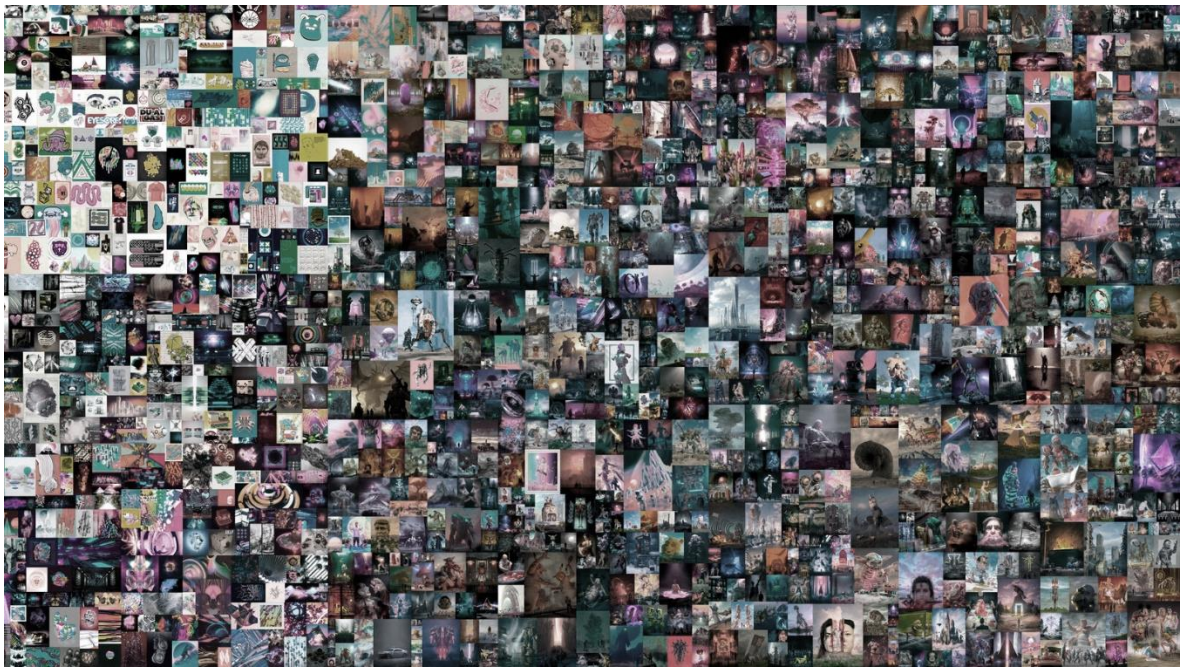

Figure 5.4: Everydays: The First 5000 Days[31]

[31] Source: https://onlineonly.christies.com/s/beeple-first-5000-days/beeple-b-1981-1/112924?ldp_breadcrumb=back Retrieved: 12.04.2021

Non-fungible token (NFT) is to certify digital works as original works for sale, purchase, and collection on blockchain technology. NFT licenses act as certificates, much like car or house certificates. The collector must own the original file and needs to register for designing uploading and integrating it into the metaverse. This process is repeated for each new sale.[32]

Designed by Artist Krista Kim in May 2020, Mars House, the first digital NFT house in the world, is sold. The house as a digital 3D file can be experienced in virtual reality. It is rendered with the software named Unreal Engine which is designed for creating video games. The house can be experienced not only in VR but also in the augmented reality (AR) environment of the app. The light-structured Mars House creates a soothing atmosphere with musical accompaniment by Jeff Schroeder of The Smashing Pumpkins.[33] I think the instant popularity of the NFT and its economically large market is because these digital NFTs will create the metaverse world. Mars House will long forever as an NFT, therefore it represents a new-age art movement for humanity through the progress of digital technology.

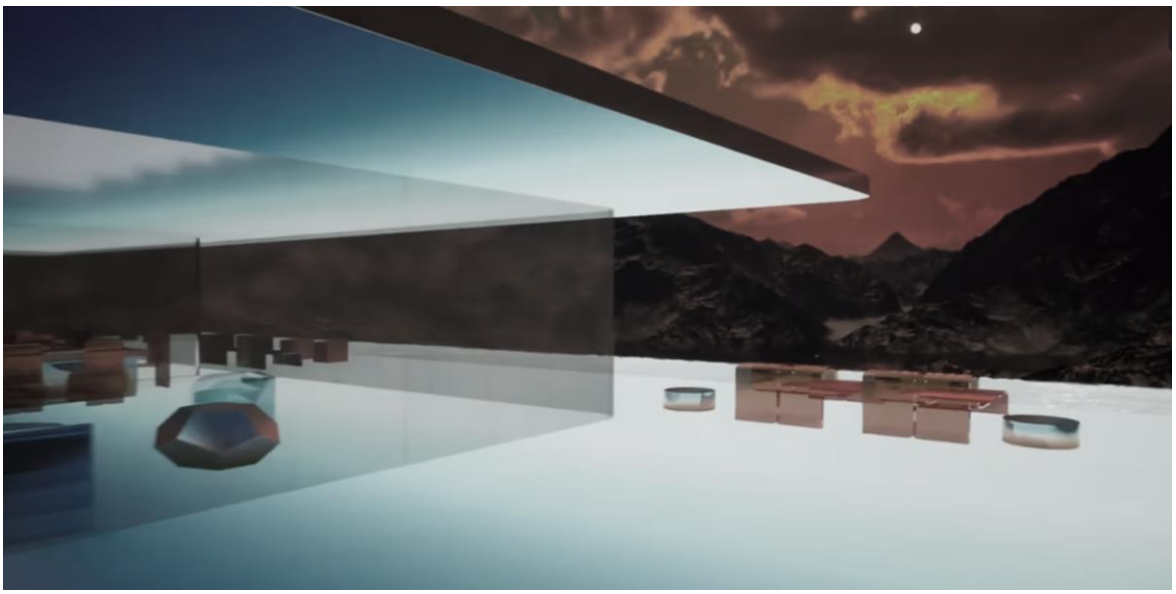

Figure 5.5: The first sold NFT house, Mars House[33]

[32] Source: https://www.architecturalrecord.com/articles/15047-nfts-and-what-they-mean-for-architecture Retrieved: 10.04.2021
[33] Source: https://www.archdaily.com/959011/mars-house-first-digital-home-to-be-sold-on-the-nft-marketplace Retrieved: 10.04.2021

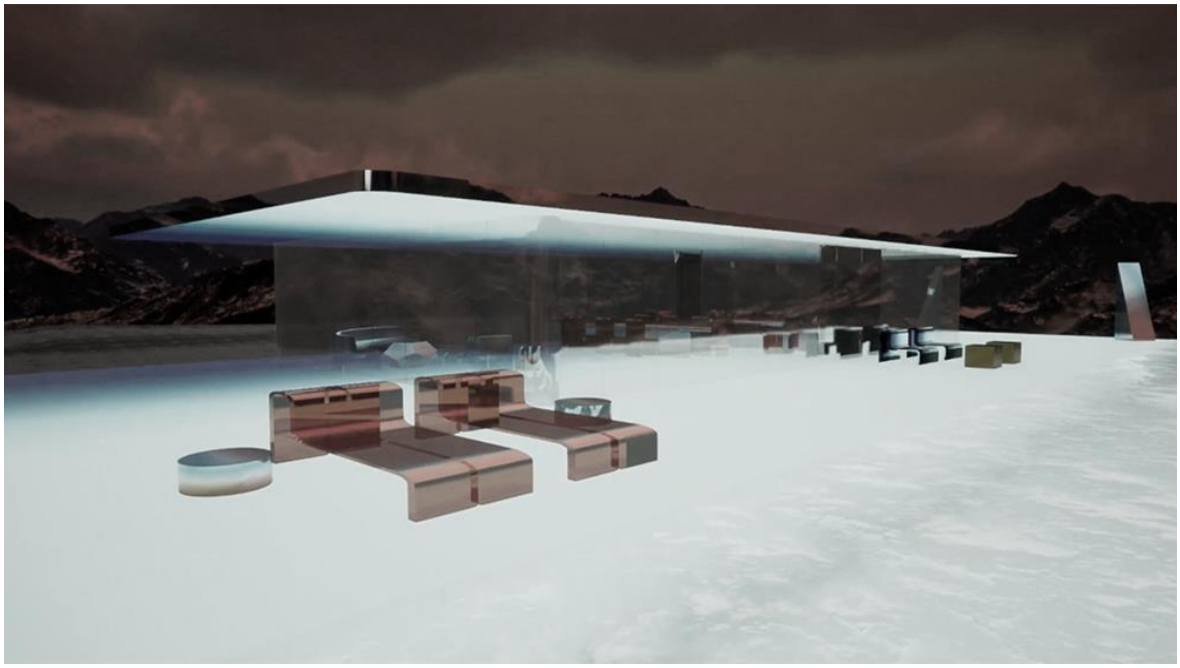

Figure 5.6: The first sold NFT house, Mars House[33]

As far as it has developed so far, it seems that; metaverse includes a continuous speculative growth with a different integration and resource transfer. It is based on the assumption that human will spend time in this infinite universe, disconnected from the real world, in the not-too-distant future. It can be said that there is a pessimism that the freedoms that human gave up for social welfare due to the pandemic cannot be returned as long as the metaverse exists.

Although it will probably happen as an imposition of the Capitalocenic world, human may eventually become convinced of the idea of having this experience as NFT instead of going to an outdoor festival as before. Not to contact with the viruses of other humans or having a more unique experience that humans can only share with other humans they choose, can be a sign of social status. After all, it may seem dystopian enough that humans are heading towards an era where they are considered to be in the public realm less frequently. This may lead to research by asking how intermediate spatializations between different realities can be designed and executed.

Figure 5.7: Another NFT house, The Architect[34]

[34] Source: https://www.trevorjonesart.com/10---the-architect.html Retrieved: 05.04.2021

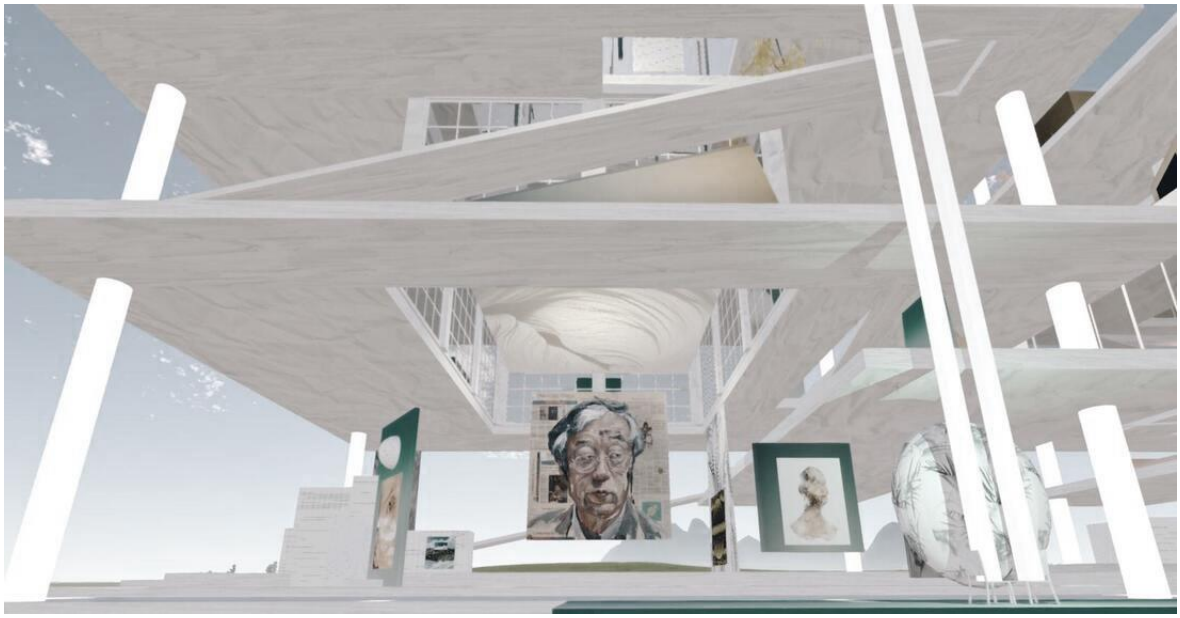

Figure 5.8: NFT, The Architect[34]

On April 7th, 2021 Dezeen Club's metaverse meet-up event has been held at a virtual rooftop bar. The virtual world and the real world will become one and the human body will merge with fashion and architecture, according to speakers Artist and Designer Andrés Reisinger who is exploring the boundaries between the digital and real worlds, Amber Jae Slooten, the co-founder of digital fashion house The Fabricant, Artist and Designer Charlotte Taylor who creates fantasy digital architecture and interiors, Architects Lara Lesmes and Fredrik Hellberg of Space Popular as the pioneers of the virtual architecture development.[35]

According to Slooten, the virtual and real worlds will integrate and there will be a virtual layer on top of the reality that human will be able to turn on and off which can be gone into (Slooten 2021). Hellberg thinks it is already beginning to happen where architecture, fashion, and the body sort of becoming one. Hellberg designed Arquia Proxima, the first-ever architecture conference held in virtual reality, with Lesmes.

[35] Source: https://www.dezeen.com/2021/03/23/dezeen-club-virtual-rooftop-bar/ Retrieved: 01.04.2021

Figure 5.9: Arquia Proxima, the first-ever architecture conference held in virtual reality by Lara Lesmes, Fredrik Hellberg from Space Popular, 2020[36]

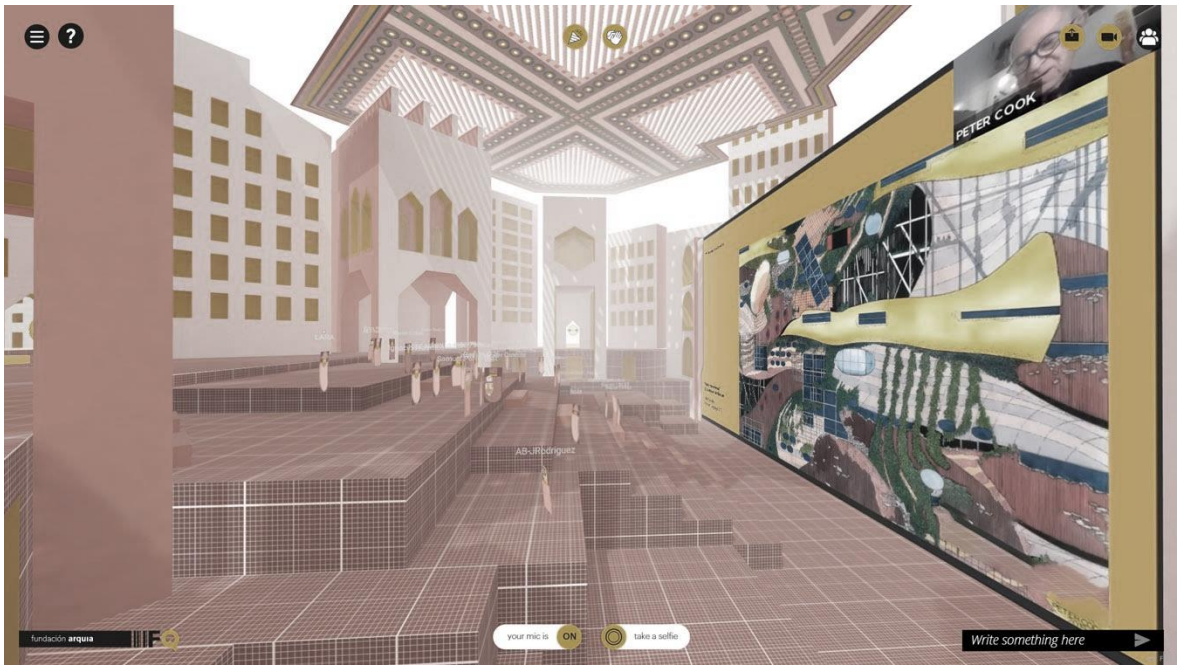

Figure 5.10: Arquia Proxima 2020[36]

[36] Source: http://www.spacepopular.com/2020---punto-de-inflexion---vii-festival-arquia-proxima Retrieved: 05.04.2021

A digital world seems possible where humans prefer to live voluntarily, not under the commands of machines. That is the intellectual founding point of Society 5.0. The next step of the world, which creates a unique reality through personas/avatars that each individual creates and transforms as they wish, maybe the transfer of consciousness. The possibilities created by a digital world in which consciousness, memory, memories, and experiences are transferred, and the frequency of use of this digital world and the possibilities that the real world can transform can also suggest interesting architectural developments.

There is an ongoing project named Neuralink that is currently being worked on about consciousness transfer. Neuralink is non-profit neurotechnology research that Elon Musk founded in San Francisco in 2017 to develop implantable brain-computer interfaces. Computer-based systems that detect, analyze, and transmit signals related to the desired actions in the brain are called brain-computer interface (BCI) or brain-machine interface. Brain-computer interfaces receive signals in the human brain, interpret them and perform commands through the Link (the name given to these Neuralink chips) implant in the brain or the electrodes placed on the scalp; it allows the brain to have the power to control any device connected to the internet. To put it simply, Neuralink is a project that promises to turn a utopian-sounding situation into reality, such as the ability to read thoughts. Unlike Stephen Hawking's writing with eye movements, in Neuralink the thought conversations will be read directly from the brain.[37]

Neuralink chips consist of wires placed directly in the brain and a chip placed in the skull. With the surgical robot developed by Neuralink, the cables will be placed inside the brain. Without the need for any anesthesia for the operation, a part of the skull is cut and the cables are placed. These cables are used to detect brain neurons. With the advance of its artificial intelligence, the Neuralink surgical robot scans the brain to map the vessels (see Figure 5.11) and places the cables where there are no vessels. In this way, any bleeding or deformation in the brain is prevented.[37]

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[37] Source: https://neuralink.com/ Retrieved: 13.04.2021

Figure 5.11: Brain map illustration[37]

Neuralink's main mission is to help people with brain damage. Max Hodak, head of the revolutionary project, states that the project aims to bring hope to many people, from people with paralysis to patients with Parkinson's disease. It also suggests that it will cure diseases such as memory loss, hearing loss, blindness, depression, and insomnia. Speaking at the investor meeting, Doctor Matthew MacDougall, chief surgeon of Neuralink, states that their first goal after starting experiments on humans is to treat stroke and spinal cord paralysis. Sergey Stavisky, Professor of Neurology at Stanford University, states that Neuralink research has made impressive progress and is the first in history to switch to a system built entirely inside the brain.[38]

[38] Source: https://stavisky.info/?page_id=255 Retrieved: 13.04.2021

With the magnificent opportunities that Neuralink and similar brain-computer interfaces (see Figure 5.12) can offer for humanity; it is argued that the transfer of the human brain to the digital environment carries great risks on issues such as cyber security and ethics. In other words, the possibility reversed connection established between the brain and the computer via Neuralink that is, the possibility that the signals from the computer can dominate the brain, is considered a great threat to humanity. In Neuralink research, which is open to conspiracy theories, it is argued that human should focus on scientific fact, not conspiracy theories. On the other hand, it is also thought that the Neuralink project should be implemented to equate computers with human, in case of misdirection of artificial intelligence could cause problems for humanity.[39]

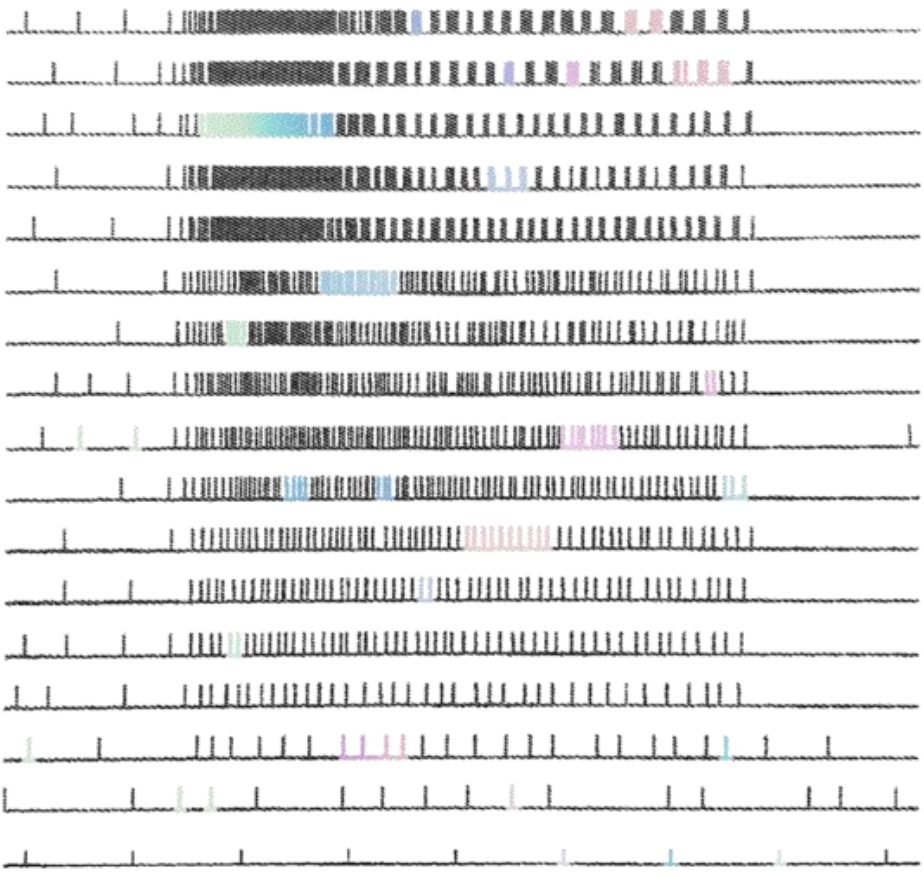

Figure 5.12: BCI illustration[37]

[39] Source: https://youtu.be/DVvmgjBL74w Retrieved: 13.04.2021

Can a digital world, almost built by consciousness transfer, remain virtual on its own? The question of *"what is real?"* becomes meaningful here. The binary opposition of real and virtual is remarkably crucial in current architectural practice. However, with the implementation of the developments mentioned above, it may become possible to talk about different definitions of intermediate space between these two oppositions and a completely different understanding of chôra. The intermediate chôra spaces between the different layers of realities, existences, and spaces of the public realm.

Humans are in a liminal position at the intersection of the Chthulucenic existence in the distant future and the social existence of the public sphere that keeps transforming by digital developments in the near future. Considering all the development possibilities above, the relation between virtual and real space with the current digital information transfer method seems to be at a primitive level. Here, the main problem is the acceleration of the current architectural practice progress differs from the acceleration of technological developments' speed. Considering the current developments, it can be predicted that the architectural contribution to this interdisciplinary world of the metaverse, is relatively slow. In the next New Generation Public Space Approach section, the current virtual and real space relations and Chthulucenic design understanding possibilities are examined.

5.4. NEW GENERATION PUBLIC SPACE APPROACH

The modes of production that created the Anthropocene, which has become an integral part of the new generation of public space imagination, are also transforming public spatialization. This spatialization occurs by the new generation production mode Society 5.0 and digital knowledge commons as its' output. In the continuation of the research, a series of projects that exemplify the relationship amid the transformation of modes of production and the interaction in the public sphere were examined. In the sample outline; it is observed that the development of this spatialization, which started with the need of humans to see and be seen in the public space, today the human has transformed themself into a consumption object in the public space.

With Industry 1.0, the Industrial Revolution the steel production has begun. The entry of steel into production derived transparent surfaces to expand. Expanding transparent surfaces form "showcases" that transform the individual's relationship with the object in the public space. The public space has been the first place where different classes can meet to watch the public showcases. One of the current public sphere concepts of the period is the need to see and be seen (Tansel Korkmaz 2020). Public space is started to be used as an object of consumption. As the individuals consume, they want the public space to change as well.

Figure 5.13: Paris and its boulevards transformed into an object of consumption, Camille Pissarro, *The Boulevard Montmartre on a Winter Morning, 1897*, oil on canvas[40]

Nowadays, public space is used as virtual communication spaces. In the continuation of the research, project examples and inferences about the relationship of user actions in public space are included.

[40] Source: https://www.metmuseum.org/art/collection/search/437310 Retrieved: 23.09.2019

Can the Pokémon Go game of placing virtual content in real-world locations teach those responsible for shaping the real-world public space? Pokémon Go challenges urban planners to rethink public spaces in a way that addresses their potential to enhance the experience. Today's understanding of public space is firmly rooted in the physical world, with laws and institutions governing its design, function, and permitted content. If hundreds of people want to use one park simultaneously for an event, the city council is traditionally notified and asked to participate. However, AR applications suitable for public spaces can bypass such institutions.

Figure 5.14: Pokémon Go game interface, users try to capture the characters which are placed in public spaces[41]

Communication between individuals began through the public space. The New York / Heartbeat project starts with a drum that can be experienced in the public space. As a common language produced by 3d printers, interactive media is used actively, it now becomes the show area of architects with its annual competition.

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[41] Source: https://architecturenow.co.nz/articles/public-space-versus-pokemon-go-1/ Retrieved: 12.09.2019

Figure 5.15: Heartbeat / New York [42]

Heartbeat is the urban drum of the heartbeat. This engagement sculpture is composed of a massive heart, which glows with the rhythm of strong, deep, low-frequency heartbeats. It changes its frequency as visitors approach, walk, play various percussion instruments and join the basic rhythm of the heartbeat. The audience is invited to play, listen, dance creatively, and feel the heart's vibration while enjoying the warm and pulsating lights. In Times Square's iconic, lively and flickering atmosphere, heartbeat organizes multiple beats into a unique urban concert.

[42] Source: https://www.archdaily.com/577910/stereotank-designs-heart-beating-urban-drum-for-times-square Retrieved: 15.09.2019

Figure 5.16: Heartbeat / New York [43]

The diaries transformed into blogs, blogs turned into Instagram accounts. The rapidly changing/transforming consumption habits and the concept of sharing as the focal point is also reflected in the public space. Now, the hyper selves created in social media have started to reflect and shape the public space. Individuals begin to use their real-life independent, hyper-real personas that they also constructed in the public sphere. The public space also becomes a performative space where people present themselves to society.

[43] Source: https://www.archdaily.com/577910/stereotank-designs-heart-beating-urban-drum-for-times-square Retrieved: 15.09.2019

> "This interactive piece is a poetic meditation on the elemental and sensual qualities of water and light."[44]

The Chicago Millennium Park is an interactive artwork designed by Catalan artist Jaume Plensa. The font illustrates how creativity, technology, and interactivity can be mixed to form. One of the most significant characteristics of the Crown Fountain idea is its power to give back to humanity. People travel far and wide to make contact with this work of art so that they have the opportunity to walk on water and hear the sound of its fall. The use of a human face as an image in a tower of falling water shows the coexistence that must exist between man and nature. Visitors can sit on benches, and their face-to-face position emphasizes the peaceful reality of people communicating with and genuinely caring for each other.

Figure 5.17: Crown Fountain / Millennium Park, Chicago [45]

[44] Source: https://www.archdaily.com/109201/the-crown-fountain-krueck-sexton-architects Retrieved: 01.06.2020

[45] Source: https://publicdelivery.org/jaume-plensa-crown-fountain/ Retrieved: 15.09.2019

In another example, the interactive billboard takes a user's photo and reflects it on a deaf facade used as an advertising space. Until the following individual comes along and takes a picture of itself, the previous individual becomes an element of the urban landscape.

Project Faces by Theodore Watson is an interactive device that can capture your portrait and draw it on a large scale, then project it onto the building across the street. The project aims to show the diversity and personality of the people who pass by Market St and allow the public to stop and interact. The rendered portrait is visible on many city blocks.

Figure 5.18: Project Faces by Theodore Watson / San Francisco, user interactions [46]

[46] Source: https://theowatson.com/work/faces Retrieved: 15.09.2019

Individuals now begin to communicate with both the public sphere and the machine. In the most naive way, "what is up?" The engine reacts to the question. This again begins to meet the lonely individual's need to express themself to the public. Empirical events, emotions, traumas become instantly reflected in the public sphere.

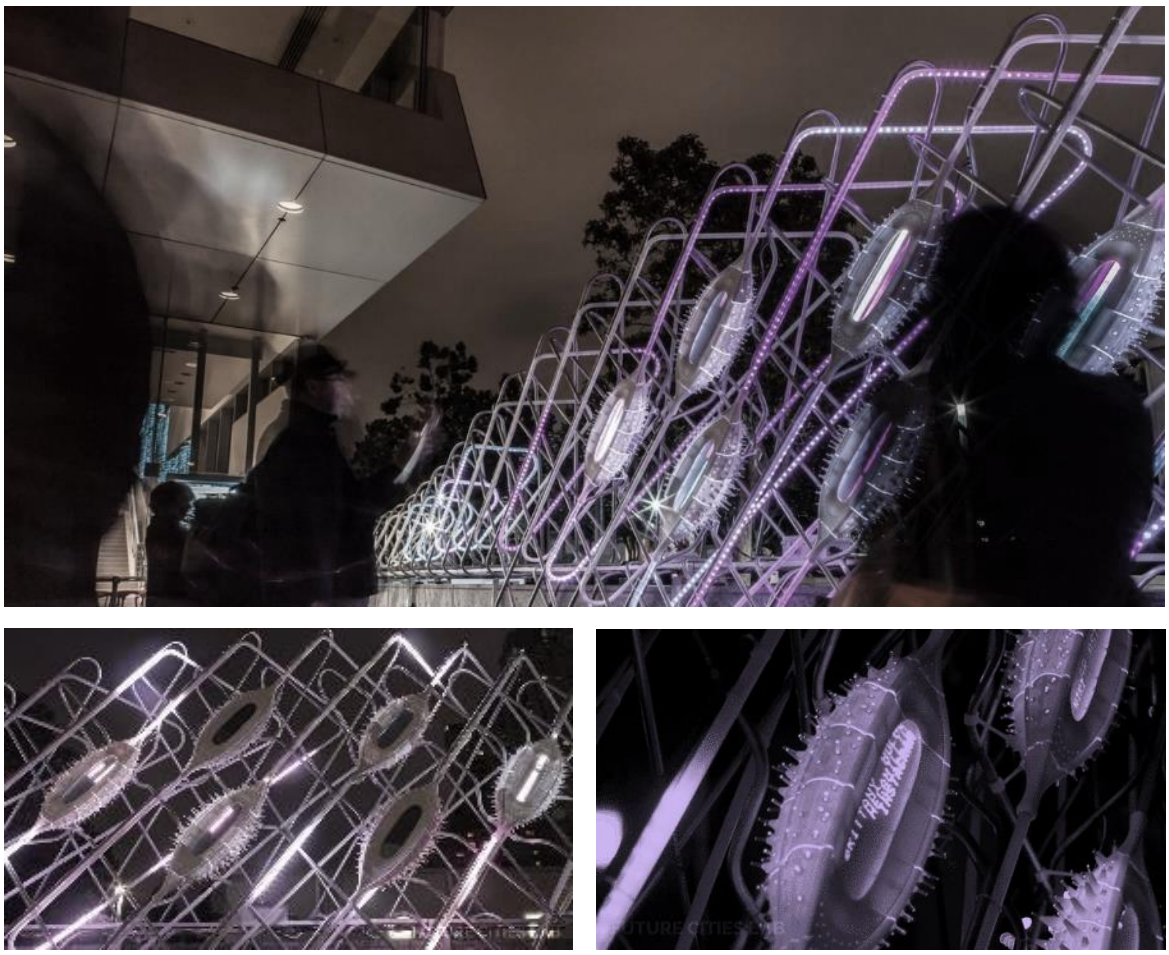

Figure 5.19-5.20-5.21: Murmur Wall, Future Cities Lab[47]

As seen from the sample stream, the public sphere reacts actively to technological changes. Although technological additions seem to serve the creative medium, all individuals experience active experiences without class distinction. Although socio-spatial distinctions are said to be as old as urban areas, current public space transformations are often associated with socio-economic transformation promoted by the consolidation of industrial capitalism (Carl H. Nightingale, 2012).

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[47] Source: http://www.future-cities-lab.net/murmurwall Retrieved: 18.09.2019

With the advent of the phone and the internet, individuals are drawn to their world. Individuals begin to carry out their communicative actions with each other through virtual media in virtual spaces. As a matter of fact, with "Industry 4.0 (IoT), Internet of Things", social practices of users, whose individuality stands out, are accelerated through the new experiences they gain by using public spaces more effectively. The public sphere becomes an interface through which neighborly relations, which disappear with the increase of individuality, become functional again, various social life partnerships, access to the knowledge and art produced.

One of the topics in which perceptions change with the technological effects of the new mode of production, Society 5.0, and the response of human movements to this development is the public sphere. The public sphere, formed around communicative actions, has been fictionalized among users and through the media. In the current situation, the communication actions were only between the users in the public sphere. Now, it changed the paradigm in a "human" oriented direction. Now, users can also communicate with space. Thus, the public space becomes responsive to the sudden changing communicative actions of the users on the public sphere.

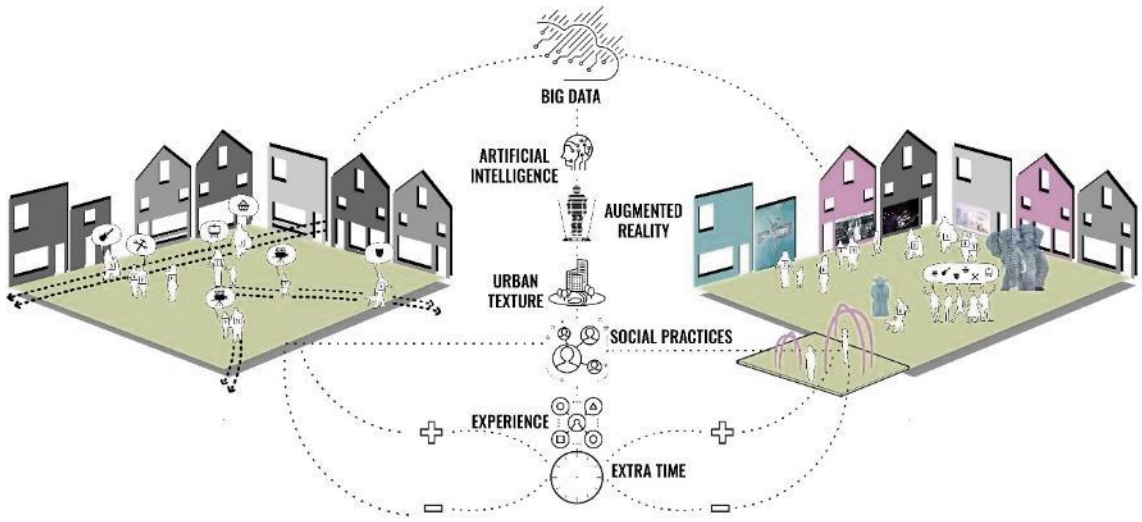

Figure 5.22: The new generation public space, interaction (Arslan 2019)

To define the technological changes, the new production model, Society 5.0, has been conceptualized. Society 5.0 supports individuals' demands, preferences, needs and builds its system on this. Society 5.0 supports the cooperation of artificial intelligence and humans in production because human beings are almost extinct in the face of technological development. Society 5.0 states that to survive, human characteristics differences should be highlighted, and people's preferences should be prioritized. However, it is fundamentally based on personalized mass production.

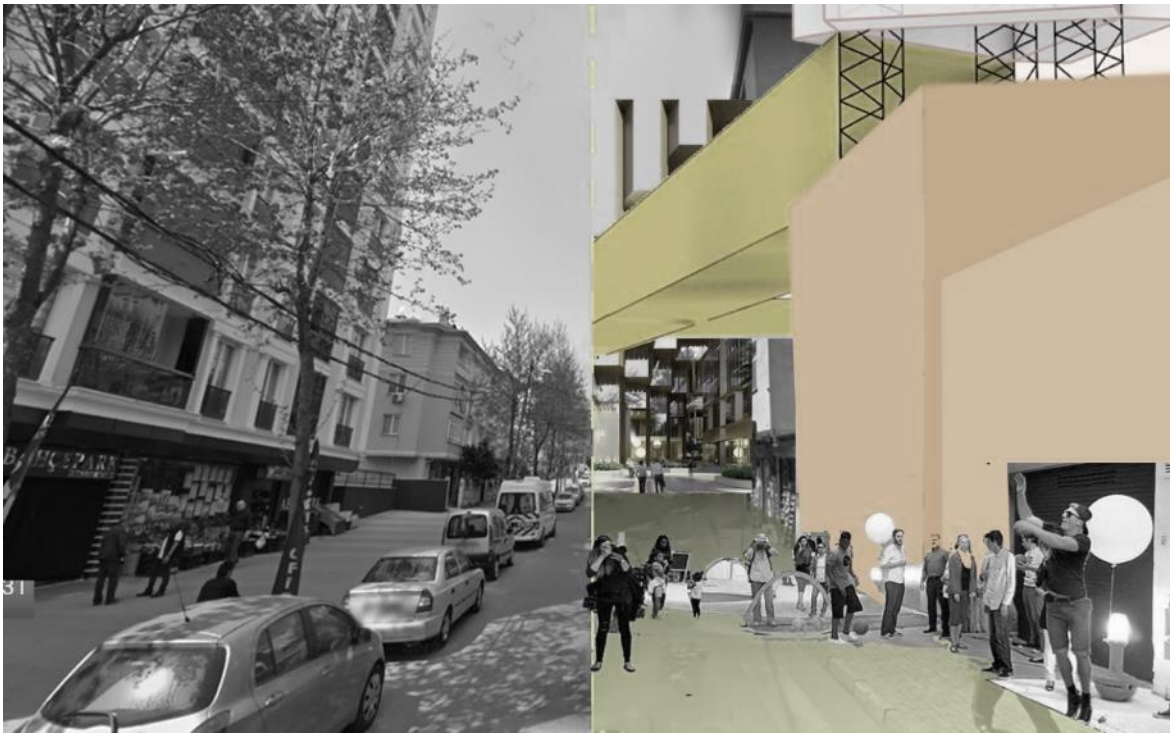

Figure 5.23: The public space used as a transitional space becomes responsive to the instantly changing demands and needs of users (Arslan 2019)

The public sphere changes to work simultaneously with artificial intelligence, making suggestions using big data analyzes users' sudden changing strategic (purposeful) actions. With the usage changes' medical, psychological, and intellectual effects, it becomes a new social interaction area. Communicative actions now; The actions of the users towards the strategic / goals are formed according to normative actions and space potentials that are compatible with the general codes of society.

Figure 5.24: The triangulation proposal of the new generation public space (Arslan 2019)

The public sphere formed by the practice of communicative action is commons. With the advancement of technology, the concept of sharing becomes a focus among individuals. The masses that can be reached by the interaction of the public space overflow space. The public sphere transforms into a performative space. The individual has become an object of consumption in the public sphere. The public space becomes preferable with its potential to meet the increasing network needs of individualized users or to transform the public space into an educational space. Public space enables idea crossing. This feature meets one of the significant needs of the future formed in the context of creativity.

Public space as a commons aims to fulfill the individuals' demands and needs on a common plane. The newly developed common plane also supports the formation of new social ties and networks. The variability of the relationships established amid concepts allows the space to be updated instantly. The space potentials can be evaluated through these variables. The public space is also the best place to collect the data needed to bring personalized solutions. With whom, with what, and how do people prefer to interact? What are the instantly changing demands and needs?

To reveal a space manifestation through the discussions and represent it, Chthulucene, the relationship between ecology, capitalism, communication technologies, and the post humanist approach, is the desired projection for future spatialization. Whereas, in this section, the public space limits are defined by the applicable technology developments in the present day.

It is classified as the relations established with the physical space. What kind of publicization will be discussed under the current intense effect of capitalism has been considered. The continuity of the physical space by the self-organized users has been considered.

The intersection of the public sphere and space, in its broadest sense, encompasses all our shared interactions and environments, including buildings, outdoor spaces, landscapes, and maybe other dimensions in the distant future. It's all about users with each other as a whole. It is improved common areas and facilities is supported by the users to achieve a Chthulucenic approach. Processes that emphasize knowledge, teamwork, presentation, and good implementation are essential to what we want to achieve.

A public space projection enables an actively working and purposefully towards developing public spaces and a public space network. It should be based on local conditions and adapted to suit each place. The Chthulucenic approach is a scalable thinking way, therefore a Chthulucenic public space approach can be made as comprehensive or as simple as needed. The projection should be developed in collaboration with local inhabitants so that public spaces and the connections between them are easy to use, attractive, and accessible to all.

5.4. AN INTERACTION SPATIALIZATION: A HYPOSTASIZE IN URBAN

This section of the research examines an urban project related to public space interactions and Chthulucenic approaches. The project is selected to exemplify how Chthulucenic approach can be reflected to design practices. People nowadays live in a world where public life is continuously evolving and public places are no longer limited to the physical metropolitan landscape. With the Internet's global reach, public space users are increasingly surrounded and engaged in new technology that provides them with access to virtual space. According to the deep research of Stockholm Resilience Centre & Convention On Biological Diversity, the world will look different in 2030 and beyond. Urbanization will change the surface of our planet and the biodiversity that is an essential part of it. Over the next thirty years, Earth will undergo the largest and fastest period of urban growth in human history by 2050 an additional area the size of South Africa is projected to become urban. By then 6.3 billion people will live in towns and cities. An increase of 2.8 billion from 2010, more than doubling the world's urban population in just 40 years.[48]

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[48] Stockholm Resilience Centre & Convention On Biological Diversity, "*An Urbanizing Planet*," Globaïa | Planetary Awareness through Science and Art [online], https://globaia.org/urbanizing-planet [retrieved 10 April 2021].

The most rapid and extensive urban expansion is occurring in places to some of the world's most biodiversity-rich areas. In many of these areas people have limited economic and technical resources to deal with the challenges that come with the growth, but urbanization also provides opportunities. Cities are hubs of change. Cities can provide the solutions to conserve and protect nature and the ecosystems we depend on. Because we know that rich biodiversity can exist in cities and urban ecosystems can significantly improve human health and well-being. We know that more conscious lifestyles and smarter development can help protect and support rich biodiversity both inside and outside of urban areas. Well-functioning ecosystems can help reduce the risks of water shortage droughts, storms, and heatwaves. They can help to curb environmental degradation. That is why unleashing the potential of cities is vital to securing our sustainable future.[48]

Figure 5.25: Global projection of urban population by 2030

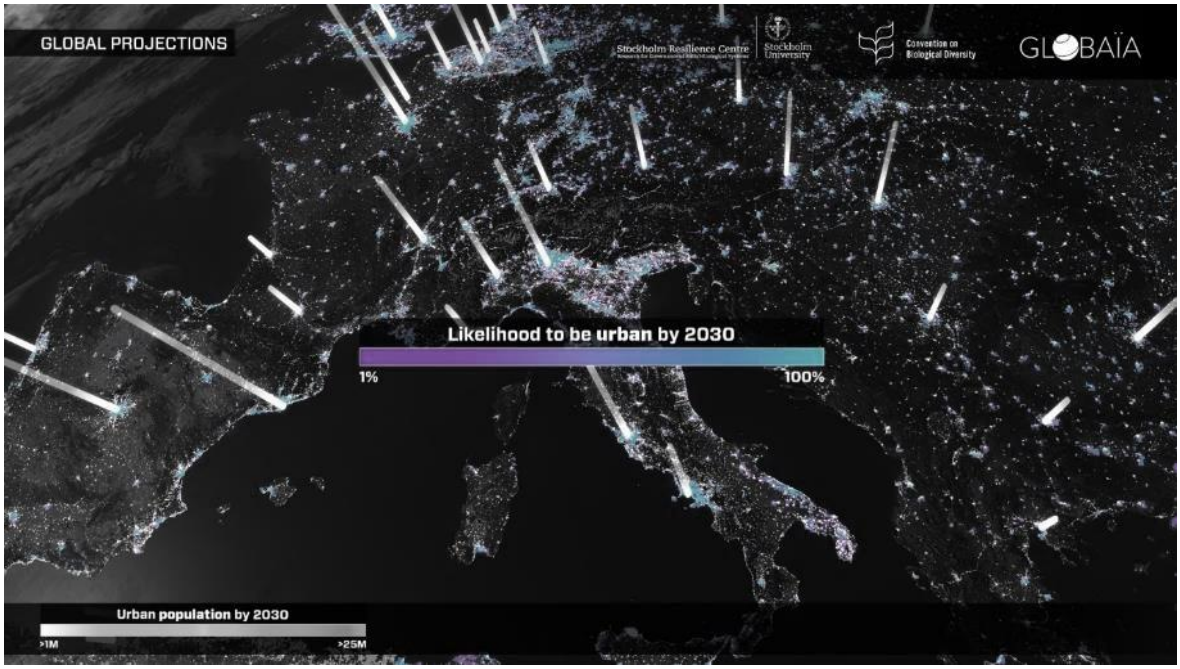

Figure 5.26: Global projection of likelihood to be urban areas by 2030

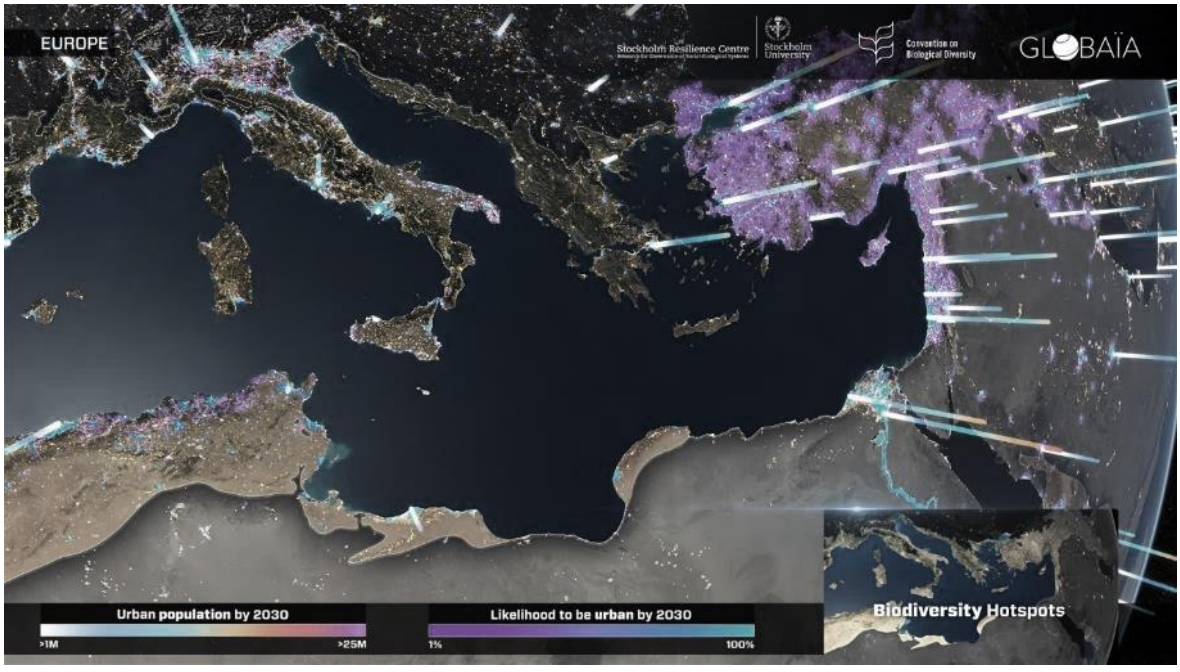

Figure 5.27: Europe projection of urban population and likelihood to be urban areas by 2030

Figure 5.28: Africa projection of urban population and likelihood to be urban areas by 2030

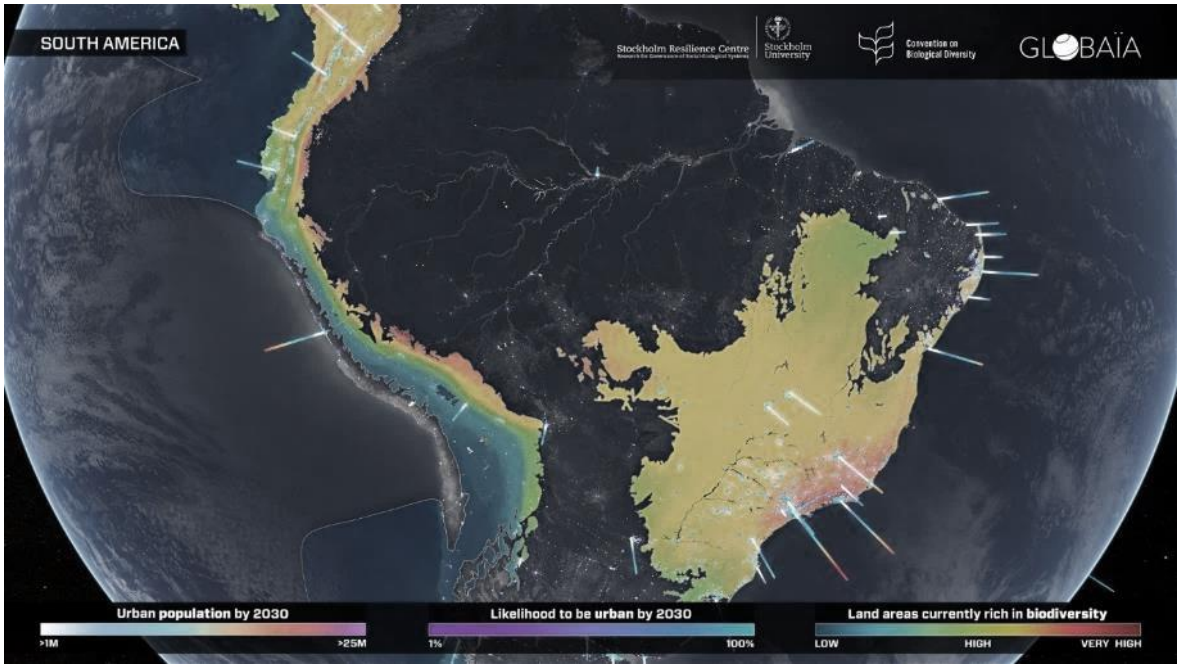

Figure 5.29: South America projection of urban population and likelihood to be urban areas by 2030

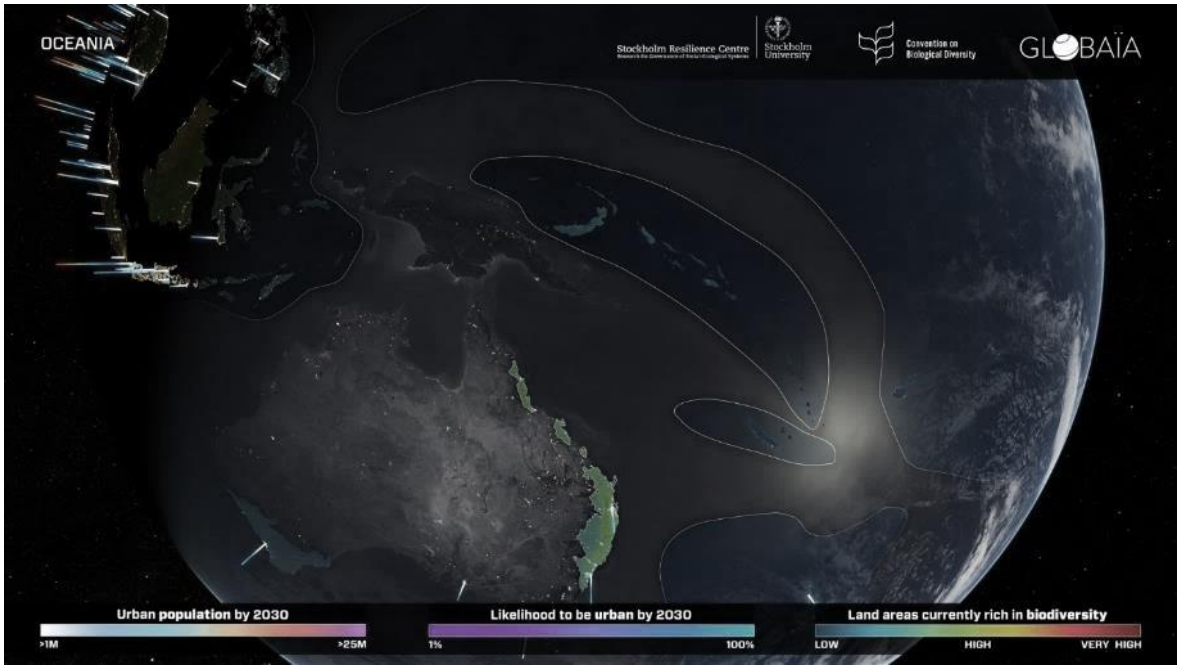

Figure 5.30: Ocenia projection of urban population and likelihood to be urban areas by 2030

All these data opens up some research areas such as progressing a versatile diversity approach. The areas where biodiversity is the richest are face-to-face with a major genocide with our current urbanization approach. Currently, we examine the issue of diversity only sociologically. While adopting diversity, it is necessary to consider not only the human-oriented and the diverse situation of the human within his own species or cultural, gender diversity, etc. but also the biodiversity with other beings. The urban of the future has to be the main center of biological diversity either. It may be possible to ensure that biodiversity is not threatened by providing metabolite exchanges.

In 2030, more than %60 of the area projected to be urban has yet to be built.

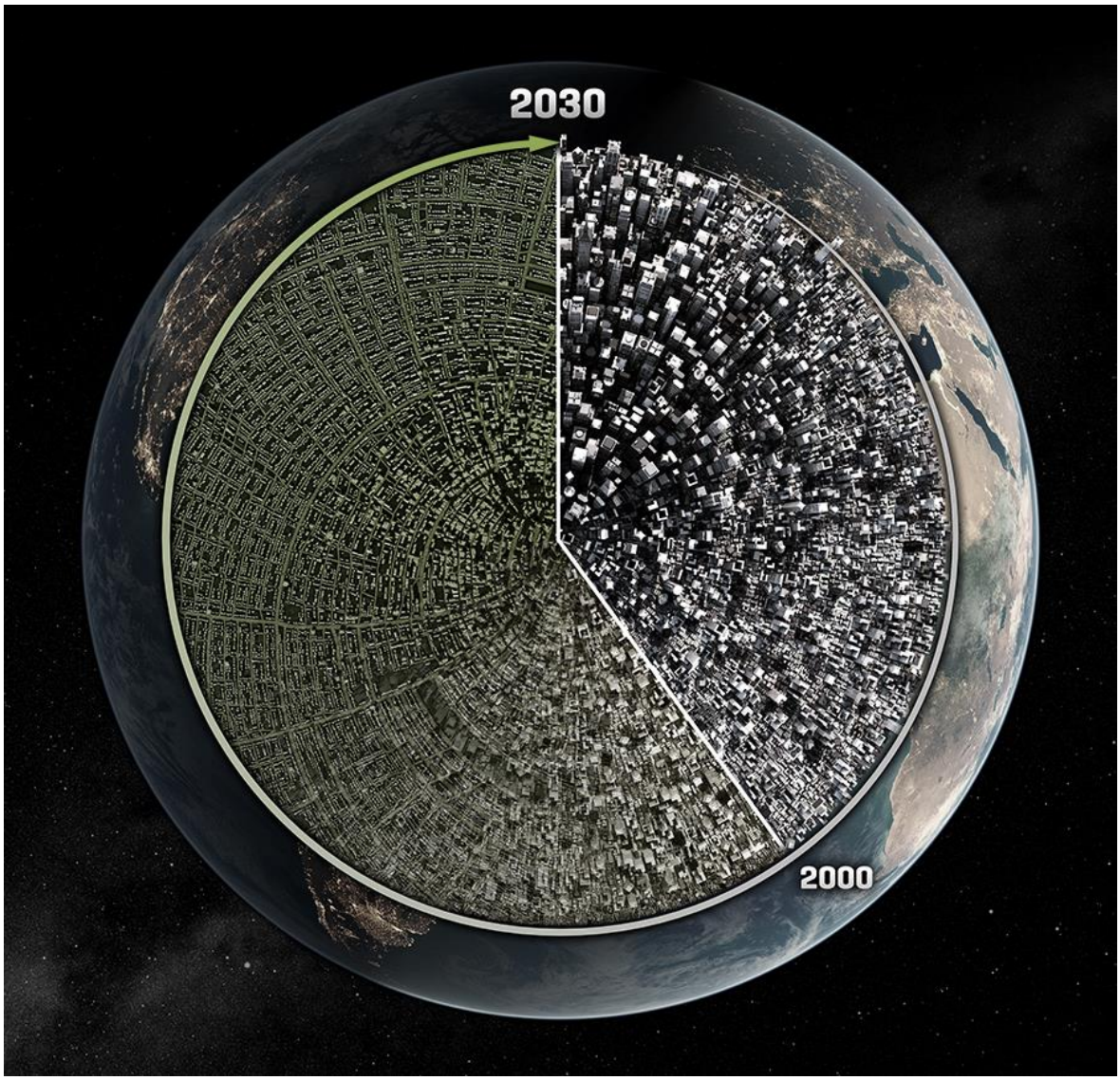

Figure 5.31: South America projection of urban population and likelihood to be urban areas by 2030

Concerning the urbanization data given above, the most significant changes will seem to occur in the public spaces. The unstoppable population growth and urbanization that will naturally result from cities being areas of opportunity show that the world's high biodiversity areas are under threat. Globaïa | In the An Urbanizing Planet projection developed by Planetary Awareness Through Science and Art, it is emphasized that cities can be places suitable for high biodiversity.

Focusing on the potentials of urban areas in the inevitable reality of urbanization, producing high-diversity and highly concentrated spaces brings a comprehensive integration requirement. It is possible to define almost a Chthulucenic system fiction. In this context, considering the public spaces, which are the parts of the cities with the highest probability of diversity; it can be said that various integration schemes, that will increase efficiency, are one of the primitive steps of a Chthulucenic, a world in a horizontal hierarchy, approach in the distant future. In the urban part of the case studies, the European Union supported project of IAAC - Institute for Advanced Architecture of Catalonia, the REFLOW, will be focused. The REFLOW Project seeks to create circular and regenerative cities by enabling active citizen participation and systemic change to rethink the present approach to material flows in cities. The concept uses Fab Labs and maker spaces as change agents in urban and peri-urban areas.

REFLOW's mission is to create circular and regenerative cities by relocating production and reforming material flows at various sizes. Fab Labs and makers, in particular, will use their spaces as catalysts of systemic change in urban and peri-urban areas, enabling, visualizing, and organizing the "four freedoms": the unrestricted movement of materials, people, (technology) information, and commons, decreasing, maximizing multi-functional use of (public) spaces, and forecasting regenerative practices (REFLOW Whitepaper 2019).

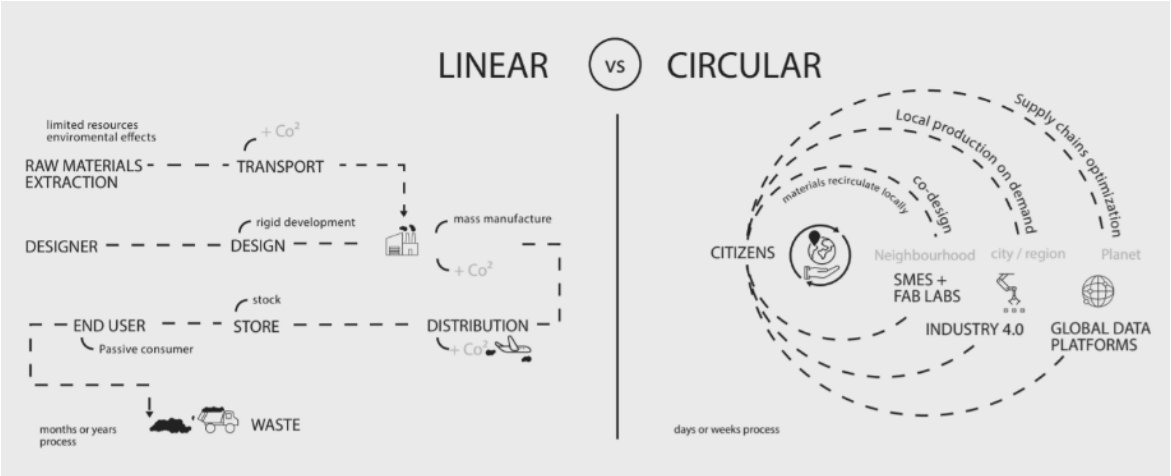

Figure 5.32: From Circular to Linear, Tomas Diez, Mariana Quintero, Fab City Global Initiative (Source: Fab City Whitepaper 2020)

REFLOW's specific goal is to deliver practical best practices that balance market and government need to create favorable conditions for the public and private sectors to adopt circular concepts. REFLOW will create new CE business models (Distributed Design Market Model, On-Demand System, Enterprise Hacking, and Enterprise Pyramid) to provide crucial examples of how cities may implement a CE model and achieve the 2030 Sustainable Development Goals. Applications to be carried out on pilot cities assess social, environmental, and economic impacts in Amsterdam, Berlin, Milan, Paris, Vejle, and Cluj-Napoca (REFLOW Whitepaper 2019).

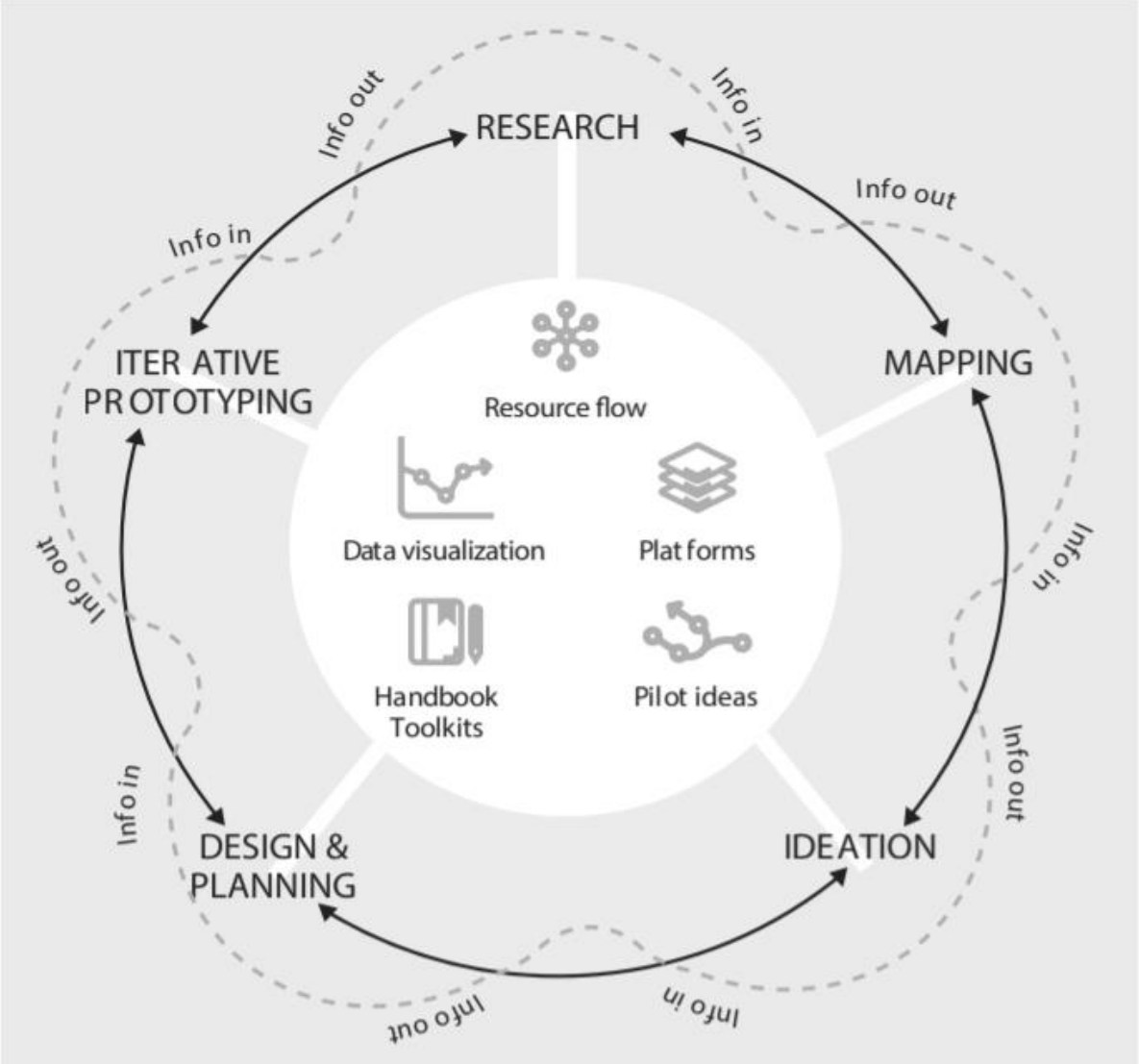

Figure 5.33: REFLOW Approach: Sally Bourdon, Manuela Reyes Guerrero, IAAC[49]

[49] Source: https://reflowproject.eu/wp-content/uploads/2020/06/Reflow_Whitepaper.pdf Retrieved: 29.09.2020

The project leverages blockchain technologies to promote cyclic applications and data visualization tools in local ecosystems to ensure ongoing monitoring and optimization of "urban metabolic" processes and rapid reaction management. Data visualization and standard templates will be accessible to facilitate effective communication, public consultation, and experience sharing. Sensor networks, urban computing, and geographic localization capture data that ensure the respective data infrastructures' accuracy, integrity, and interoperability (REFLOW Whitepaper 2019).

REFLOW assesses the link between urban production and consumption by calculating and analyzing urban resources using specific social, environmental, and economic indices. This enables REFLOW to provide a solid financial foundation for redefining material flow in urban and suburban settings. REFLOW will design and execute particular methods and models to test different kinds of cyclical governance to attain this goal. Furthermore, it will test a new multi-stakeholder, multi-dimensional performance management system to foster the development of the local manufacturing ecosystem and future business models. The plan is based not just on computer media but also on the mobilization of existing networks and sports to develop a new production model for cities such as Circular City, C40 City, and Fab City Global Initiative (REFLOW Whitepaper 2019).

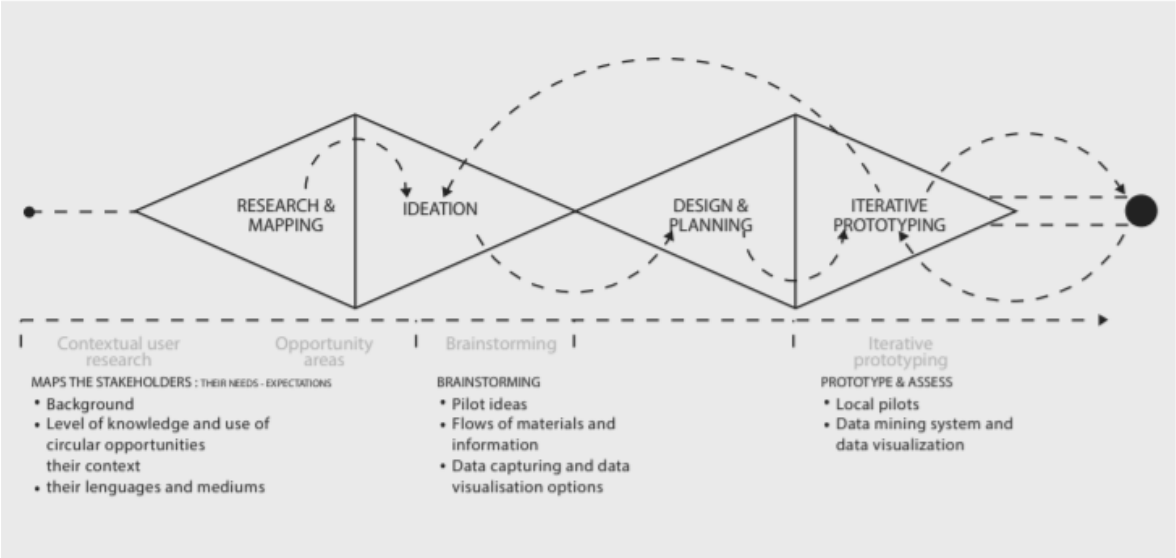

Figure 5.34: REFLOW methodology. Copenhagen Business School[50]

[50] Source: https://reflowproject.eu/wp-content/uploads/2020/06/Reflow_Whitepaper.pdf Retrieved: 29.09.2020

6. CONCLUSION

It is the organization, relationships, connections, and states of interdependence that make life up. The public space is formed around the communicative actions that its inhabitants establish among themselves and with urban spaces. The exchanges and everyday decisions made by the dwellers change in constant motion. This movement directs the communicative actions among people towards the strategies necessary for their survival and well-being.

It is thought that the ethical relationship that human beings establish with the natural environment in all contexts is essential. It is believed that the critical life resources that humans must follow to survive are their instinctive abilities and strategic vision. It is experienced that this survival approach has a positive effect both in the natural environment and human evolution. Human inspiration, wisdom, and reason are believed to develop their adaptive principles for innovative survival methods.

The growing problems due to our dwindling resources do not seem stubborn. All these developments are perhaps a challenge for us to use our creativity more effectively. The cross-section of time we live in indicates that perhaps we should establish a symbiotic relationship with the environment we live in. If our actions make up the environment we live in, the survival of our environment depends on our survival. Our survival depends on the survival of the environment we live in. If we want to survive in the world, we have to ensure that the environment we live in also continues.

The main thing is to think about how the approaches and strategies of Society 5.0, which are the catalysts for the change in perception in the public sphere/space, can contribute to the development of the society by staying while remaining within the boundaries of the established ethical relationship. Indeed, even while we are already implementing the Society 5.0 tools, we still do not evaluate the system holistically. This non-holistic attitude prevents the balance and feedback loop that must be established amid the self-development of human beings and the natural environment they live in and the machine they produce.

Society 5.0 can make this developing and transforming information production visible by providing a perception change in the spatial reflections of communicative actions amid users through the organization of the big data produced. When we examine the human-machine-data relations in the public sphere/space, it is seen that we are already in this transformation. The transformation of the public sphere into consumption, triggered by the industrial revolution, can be accelerated by adding the digital commons to the equation. The fact that individuals transform themselves into digital commodities is a factor that feeds this process. It can be difficult for people to be thrown into contemporary user groups without this understanding, and there is no guarantee that it will be open to other users they interact with within these public spaces.

> "The tragedy of the commons is a situation in a shared-resource system where individual users act independently in their own interests, acting against the common good of all users by consuming or disrupting the common resource by their collective action." (Lloyd 1833)

Concerning urban commons in the scope of public space, it is necessary to consider the resources broadly to see and reveal these urban commons, which requires going beyond the definition of the commons. In the idea of the commons, resources that deplete as humans use them are considered rivals. A theater and a square in the city are commons. The value of the theater or the city square does not decrease as it is used but increases. The increase in the individual's demands and needs, independence, and increase in the value of the urban commons through Society 5.0 creates a new perception of commons, independent of the limitation in the definition of commons.

Commons perception is thought of as a self-transparent Chthulucenic attitude. It is thought that the problems faced by the living area, which is also a commons in this union, are also commons. Therefore, making only human-centered decisions about our living space, which we share on an equal plane with all life forms, is rejecting that our living spaces are commons. Haraway thinks that human-centered responses to current crises will lead to oblivion, rejection, blindness to reality. Moreover, she invites us to think through speculative Chthulucene discussions as a solution. She says we have to think. Because according to Haraway, reflection is not a process of evaluating information and discussion; it is a choice between active care for a troubled world or active participation in genocide. It is thought that

the human movements that can be formed with the benefits of Society 5.0 and that will construct the spatialization in the public space and the way they are evaluated have the potential to develop positively with the use of digital information commons. Society 5.0 has the potential to produce a new discourse with its structural stance within itself. The fact that the system can artificially self-organize may open the spatialization to the Chthulucenic organization in the distant future.

It is thought that reaching a standard agreement with rational arguments, ideas, and collaborations, rather than the actions of public space users for their purposes, is a more evolutionary attitude in terms of the continuity of their existence. Because the world is in a dynamic transformation and its conditions are constantly changing, only organisms that can adapt and continue to evolve can exist in such a system. The form and structure most appropriate to the external context are seen as the best-adapted structure and, therefore, more likely to exist.

A collective/standard consensus might occur with regular analysis of the existing data. The fact that the analysis and planning applications of the mass movements are constantly and correctly placed in the memory of the space provides the necessary data for the reactions that can be developed against the possible effects. It is thought that talking about a system that is constantly transforming/developing with the feedback of these data is the basic necessity of the new generation of public space fiction. Instrumentalizing developed technologies by questioning their design, a new generation of public space might open perspective to equal publicity.

Communication and behavioral patterns are transforming very rapidly in parallel with the development speed of technology. We are in the painful, liminal time of this transformation. In this liminal situation, we must choose our route correctly because we become what we imitate. This research, inspired by post-humanist theory, envisions the transformation of shared spaces around the world in the distant future. A Chthulucenic public space approach is based on thinking of the space as an equal commons for users. This vision of the world, whose transformation is foreseen in the distant future, provides an effort to develop a perspective that can be used actively in current design problems.

Design works produced with a world of equality approach that transforms relationships in the future, gain a holistic, inclusive perspective. This in itself indicates that the Chthulucenic approach is a subject worth striving to understand. In addition, Chthulucene carries itself to an inclusive spatialization that includes equals. This attitude is in stark contrast to the human-centered understanding of the Anthropocene, and this is an important trigger for continued research.

The spatialization of public space was read from a symbiotic perspective and when the environment of equals was imagined in the thesis, it was seen that some of the problems we discussed in our current order were solved. The conceptualization of the network of relations in the social order, in which the contributions and differences of each living being can come to the fore, is the fundamental phenomenon at the root of social and environmental problems. A new world of possibilities is there, which enables this thesis to have existed when a step is taken without ignoring this phenomenon while considering any spatialization. The ultimate aim of the thesis was to discuss the possibilities of this new interdisciplinary synthesis. In the research, it was seen that when the concept of Chthulucene is examined, there are areas of discussion that can be spatialized such as urban space/sphere and chôra, where an environment of equality can be achieved.

The public space/sphere brings together different users, ideas, actions, and interactions in an equal environment. The differentiation of the Chthulucene debate both in the urban and in the rural made it possible to define urban space/sphere and chôra in the research. These ways of interaction and spatialization concepts, which are based on the importance of collective consciousness and the opportunities of living together, are given as design examples with a Chthulucenic approach. How to redefine public space in the future with Chthulucenic approach? How will a Chthulecenic public space be formed that can constantly change/develop itself through dynamic dialogue and feedback from an intelligent coexistence system? How to design a public space that transforms the perception of time-space with its simultaneous movement and lives its own time?

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APPENDIX A: GENOMIX MASKS: GENOMICS, EPOCH, AND IDENTITY

Genomix Masks is a project inspired by the definitions Anthropocene, Capitalocene, Plantationocene, and the prescience Chthulucene of Donna Haraway. The project is based on the interaction of human and non-human kinds gene sequences by AI. Genomics aims to define the past historical terms with a mixed kind and to produce a *new kind*. Freak Lab has developed the project. The project is selected for the thesis to inspire future researches. In the main idea, the project is a design exercise which involves techniques that enable the correlation of different parts to interact on a consequential design plane.

Figure A.1: Genomix Masks

The exhibition is debuted the "Genomix Mask," which was created through cooperation amid AI and authors. It teaches the audience about the world's four epochs: the Anthropocene, the Capitalocene, the Plantationocene, and the Chthulucene. People can employ technical power to extract resources and well-being from the world at first. Over-extraction and exploitation, on the other hand, emerged with disastrous repercussions. As a result, Donna Haraway recommended that humans become one with nature. The authors of the works describe "making kin" as a representation of nature by infusing DNA from humans and animals (iguana, monitor, virus, and octopus). Ironically, the authors require the assistance of an "Artificial Intelligence (AI)" system to reconcile humans and the environment.

To some extent, it implies that it is an unthought-of the authors. What role does artificial intelligence play in this work? It learns the heat-map of DNA and the styles of animal organisms and then develops various infused patterns that they may utilize to recompose as a mask (Genomix Masks: Genomics, Epoch, And Identity 2017).

> "Conceptual Idea: This exhibition deliberates on the interplaying between technologies, nature, and humankind." [51]

Since the Anthropocene, humans have developed technology that allows them to govern large areas of geography, and society has become disconnected from nature. Humans' mental concept is not a part of nature that will enable humans to exploit it as a commodity. Following that, capital and its accumulation became a focal point of the global system. It was not only the economic links but also the way nature was organized (Moore 2016, 6). As a result, the Capitalocene and Platationocene epochs emerged. Simply said, capital accumulation promotes wealth at the expense of both humans (labor and small capitalists) and nature. Its features harm the latter instance. For starters, it cannot represent itself in terms of 'real' price.

To be sure, there is a market price for nature; but, it may not reflect the true worth of things—the value of them on this planet for other artificial living creatures or even plants. Second, nature is highly forgiving. Its patient is restricted, may retaliate if you cross a certain threshold. Global warming and other natural disasters are important indicators of this issue. As a result, alternative perspectives are required. Donna Haraway advocated for kinship with nature (Haraway 2015, 161). Bringing humanity back into harmony with the environment is a must for her, but it will not be an easy road. Whether the authors agree or disagree with this proposal, the impending environmental crisis and human alienation from nature are unavoidable. The writers interpret making-kin by focusing on DNA in this paper (Genomix Masks: Genomics, Epoch, And Identity 2017).

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[51] Source: https://pat.design/featured_item/genomix-masks/ Retrieved: 12.08.2020

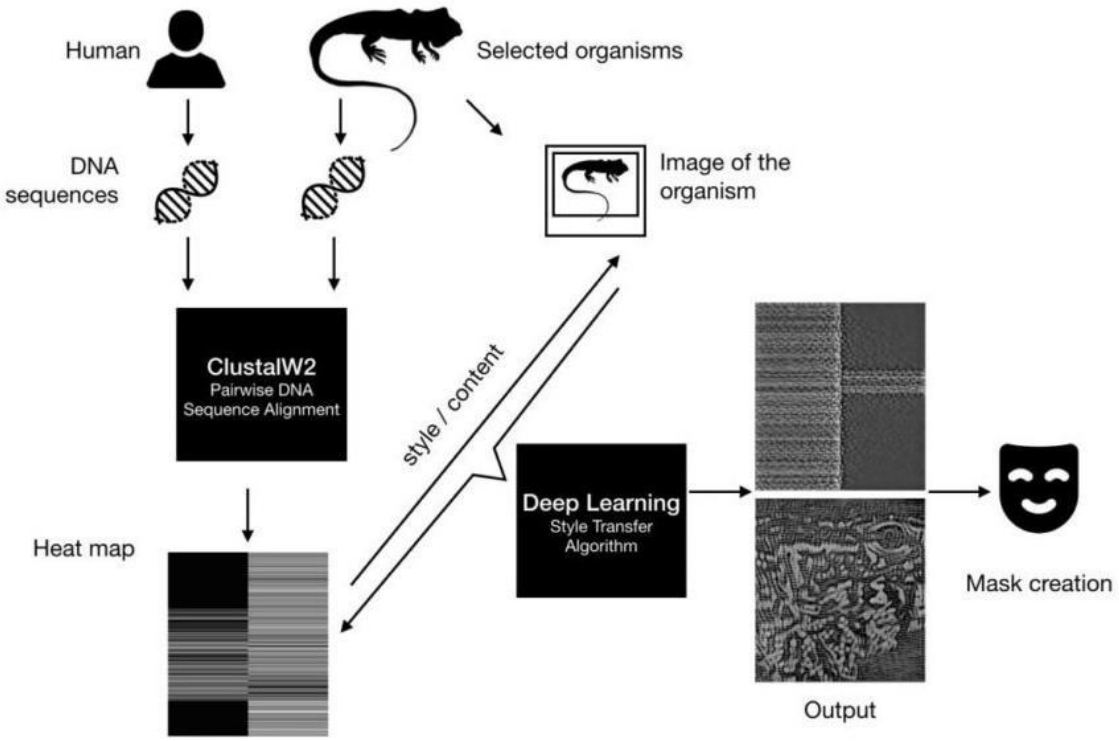

Figure A.2: Genomix Masks technical explanation

Technical Explanation: To demonstrate linkages between human-in-nature and nature-in-human, the authors infuse various DNA from different organisms alongside human DNA to produce masks across this periodization: Anthropocene, Capitalocene, Plantationocene, and Chthulucene.

1. Translating DNA into art begins with comparing nucleotides (A,T,C,G) from human DNA and DNA from different species using the ClustalW2 DNA sequence alignment method.
2. The similarity of two unique DNA sequences is used to build a heat map representation that demonstrates the similarity and distinctiveness of two distinct DNA sequences.
3. The authors then stylize the visualization with the deep learning style transfer method of Leon Gatys to transfer the texture from the picked species' pictures to their DNA and vice versa.
4. The deep learning network was pre-trained on the VGG-16 model, which has 16-19 weight layers and 3×3 filters across all convolutional layers.
5. The weight content/weight style is optimized to 8.5, 3.0, and the algorithm performs 30 iterations.

6. The visualization was utilized as visual pieces for the artist to put together the masks after the stylization. The transcription process in living cells inspired this approach.
7. This method illustrates our desire to transcend ourselves into the authors' masks on a philosophical level. They, on the other hand, cover the human superficially, much like a mask. This paradox is not a problem in and of itself because the incompatibility of human and nature is practical and unavoidable (Genomix Masks: Genomics, Epoch, And Identity 2017).

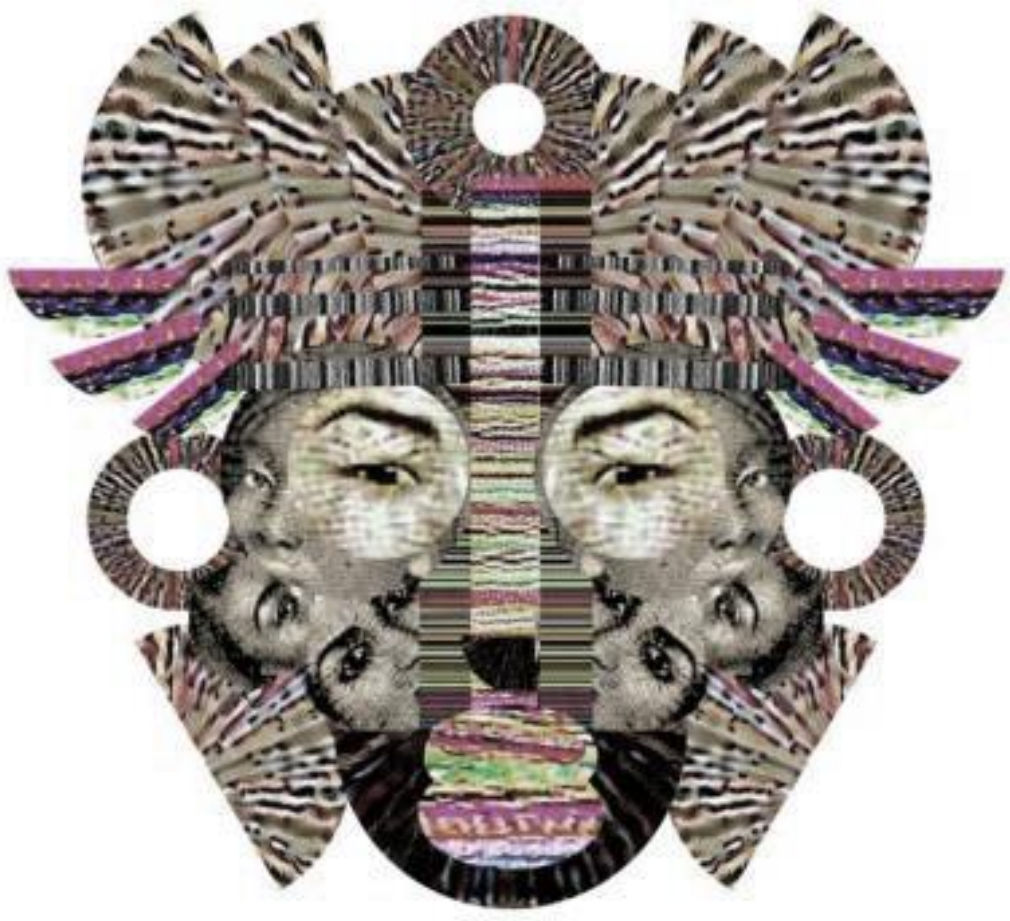

Figure A.3: Anthropocene Mask/Homo sapiens–ARHGAP11B Gene (Human)

Figure A.4: Capitalocene Mask/Iguana iguana–Complete Mitochondrial genome (Iguana)+Varanus salvator–Complete Mitochondrial genome (Water Monitor)+Aquila chrysaetos–Complete Mitochondrion genome (Eagle)+Homo sapiens–ARHGAP11B Gene (Human)

Figure A.5: Plantationocene Mask/Gossypium hirsutum–Mitogen-activated protein kinase gene (Cotton)+Syzgium aromaticum–Maturase K (matK) gene, partial cds (Clove)+Homo sapiens–ARHGAP11B Gene (Human)

Figure A.6: Chthulucene Mask/Dosidicus gigas–Complete Mitochondrial genome (Octopus)+HIV–Complete genome vector complete sequence (HIV virus)+Zika–Complete genome (Zika virus)+Ebola–Complete genome (Ebola virus)+ Homo sapiens–ARHGAP11B Gene (Human)

> "Conclusion: *Humankind used to be a part of nature*." (Genomix Masks : Genomics, Epoch, And Identity 2017)

However, the authors kept separating and eventually overexploited it. This conduct will subsequently harm humans' destiny. As a result, some researchers advise reconciling and remembering as nature. This proposal's allegory is the transformation and infusion of DNA from animals into humans. Furthermore, this work strives to experiment with visualizing techniques to improve and expand on them (Genomix Masks: Genomics, Epoch, And Identity 2017).