

‘What time is it?’: a philosophical design thinking inquiry into time diversity



Master program: Metropolitan Analysis Design Engineering (Msc. MADE)

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Date: 08-12-02020



Cover Illustration

Picture on front: Cover design for Tame Impala's fourth studio-album *The Slow Rush*, photography by Neil Krug. The Australian psychedelic rockband deceives audiences with rhythmic and lyrical repetition that dilute the listener's sense of time. The photo was taken in Kolmanskop, Namibia, a diamond mining village that was bustling with activity till 1930. Once the mine ran out of gems the village became deserted and its buildings a remnant of colonial times. Nowadays Kolmanskop attracts small amounts of tourists who are interested to see surreal landscapes and the impact time has on former human settlements. Same place, different time.

Time expressions often include a spatial dimension. I.e. running out of time, we are short on time, the time ahead of us, the road behind us. This picture shows the ambiguity of time with a door and entrance wide open through which time certainly can pass but humans cannot. The existence of simultaneous realities that seem contradictory in nature is expressed through oxymorons; *The Slow Rush*, *Festina Lente*, *Memento Mori*, *Eternal Youth*. This thesis aims to connect seemingly separate conceptions of time into one single framework so we can understand all sides of reality through multi-layered lenses, rather than a single lense. We are able to be in multiple rooms at once if we are willing to change perspective.

i. Abstract

Time can be an incredibly rich design tool, yet in today's world it is most commonly seen and applied as a constant variable for measurement. Before the proliferation of accurate and synchronized clocks, time perception was determined by authoritative rules, relative geographical position to the sun, rhythm of the seasons, observations of stars and life on earth as well as physical and mental exercise. To expand our understanding of time beyond the concept of speed (which often leads to a dichotomy of faster versus slower) a time diversity framework was developed. Seeing and applying time in a diverse way helps making our lives liveable and sustainable.

The methods employed were design thinking, social deconstruction, literature study, in-depth interviews with activists, artists and researchers who study time and light and visual cataloguing. Authors whose ideas and concepts feature in this thesis are Joke Hermsen, Peter Peters, Jaap Goudsblom, Henri Bergsson, Marcel Proust, Hannah Arendt, Martin Heidegger, Byung-Chul Han, Allen C Bluedorn, Carlo Rovelli, Joke Hermsen, Thijs Lijster, Annine van der Meer, Stewart Brand, Matthew Walker, Joke Meijer, Gemma Venhuizen, Rob Hopkins, Ryszard Kapuscinski, Thalia Verkade and Marco te Brömmelstoet.

The six distinguished time concepts are: clock time, temporal orders, situational time, circadian rhythm, eternity and duration. Chapter three demonstrates that time is a social construct by presenting a short history of timekeeping practices. Chapter four describes the thinkers, concepts and characteristics affiliated with each time concept. Chapter five assesses to what extent the time regime changed during the COVID-19 pandemic. Chapter six lists design interventions put forward by activists, artists and researchers to make the world more time diverse.

Key words: Time, diversity, plurality, clock, regimes, capitalism, temporal order, logic, ordering principle, Zeitgeist, cultural relativism, generations, circadian rhythm, natural stimuli, seasons, eternity, aion, eon, cosmos, origin stories, Bergson, Proust, time dilution, experience, being, scent, taste, sound, liveable, metropolitan areas, multi-disciplinary, design thinking, design spiral, morphological object, visual cataloguing, social deconstruction, weak theory, thick description, semi-structured interviews, literature study, triangulation.

ii. Glossary of terms

02020	The five digit form of the current year. Intervention proposed by the Long Now Foundation to foster long-term thinking. All years in this thesis will be written as five digit numbers to demonstrate that time is a social construct that evolves continuously
Capitalism	Governance based on free markets and capital accumulation
Converging / Diverging	Process described by Norbert Elias in the Process of Civilization. As civilizations adopt and spread technology, it creates more likeness between them but more differences within them. Also used to describe the double diamond design process.
COVID-19 pandemic	Abbreviation of Corona Virus Disease 19, a SARS type virus that broke out in Wuhan in October 2019. It formed a pandemic that cost 1.5 million human lives by December 6 th 2020
Dependency	Adoption of new technologies such as fire, agriculture, industry or digital communication create possibility as well as dependency
Dichotomy	Mutually exclusive opposition in language
Discourse	The ideas and language in a certain time period that determine what represents the world, what is possible and what is not
Diversity	Multiple versions of a phenomenon existing next to each other
Duality	Mode of thinking that divides the world in opposing pairs
Duration	Henri Bergsson's concept of time as something that is fluid, uneven and subjective. Time is like a snowball that gains mass as it rolls down a slope or accumulates in the human body.
Élan Vital	Vital impetus that springs to life process and a sense of meaning
Herstory	The study of the past from a female point of view
History	The study of the past from a male point of view
Intuition	Innate sense through which one can fall together with time
Logic	Belief system made up of words, images and cultural values
The Long Now	Periods of 10.000 years, coined by musician Brian Eno
Light	Electromagnetic radiation moving at various wavelengths
Neo-liberalism	Influential school of thought in economics and politics from the 1980's onwards. Its goals were to deregulate markets, shrink government size and maximize individual liberty. It reasons from rational economic man rather than from a complex web of agents
Order	Structure that places phenomena in hierarchical relations
Oxymoron	Lat. <i>bluntsharp</i> . Two opposing concepts united in one expression
Plurality	Hannah Arendt concept that describes coexistence of multiple voices in free democracy as opposed to one voice under tyranny
Regime	A set of implicit or explicit rules and agreements that allow groups of people to interact. Imposed through external constraint (authorities) or self restraint (each individual member of society)
Take-Make-Waste	Economic model that exploits natural resources for free, creates low quality disposable products and stimulates fast consumption
Taylorism / Fordism	Design of the world that maximizes time savings, minimizes labor costs and increases specialization, productivity and economic profits. Workers are seen as replaceable machine cogwheels
Time	The changing of events
Tempo	Lat. <i>Tempus</i> (time) Used in sport, music and science to indicate a rate or frequency
<i>T</i>	The scientific annotation of time as a (constant) variable, adopted from the field of mechanical engineering
Unwinding	Allegory from clock logic; to let off pressure or release tension
Utility thinking	Ethical current promoting happiness for the greatest number

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iv. Acknowledgements

A captivating story takes us away to other places, contains meaningful actions and unfolds over a set period of time. Or so I learned the 'unity principle' of dramaturgy in film school. Formulated by Aristotle in 325 B.C,¹ it still dominates our modern day drama structures. Main characters venture into unknown worlds, are given impossible tasks, learn new abilities and transform into heroes over the course of 90 minutes in screentime but in the case of an epic saga, hundreds of fictional years.

My journey in higher education felt like a similar type of journey. I ventured into unfamiliar fields, familiarized myself with new theories and tools, turned limiting circumstances into benefit and learned to overcome obstacles. I am grateful for the difficulties on the path as they unlocked knowledge and transformation.

A hero can only exist by grace of helpers in the form of kindred spirits, wizards, witches and spirit animals. Big words of thanks go to my NLP coach Judith van der Meer, enabling me to see all helpful resources are in experiences and at my disposal. Flavia Arnese for introducing me to new worlds and the beauty of language. Jennifer Pels for demonstrating how thesis writing can be an enjoyable process.. Jeroen de Vries for going for long walks, pointing out important literature and providing me with brilliant ideas and laughter. My family who cheered me up when I was down and functioned as my sounding board more than once. Brenda Brouwer and Dean Ruur Boersma for teaching me how to deal with giftedness. Supervisor Karin Peters for steering me towards the much needed structure and asking me what I *really* wanted to investigate. Supervisor Evert Meijers for cracking jokes to relieve pressure and providing many thinking directions. Vera Thosari and Marieke Koch for keeping me moving and providing an enthusiastic young man with life lessons. Thank you to Pia, Imme, Sophie and Mathilde for participating in Wageningen Writing Lab, practicing yoga and speaking motivational words. Annebel Huijboom, Janacyvan Duijn-Genet and Diandra van Duijn-Genet for proofreading. A big thank you to my parents Ellen and Jan who gave me a cultural upbringing and always made sure I could educate myself. Finally to Roland who helped breathe myself back to life through rebirthing.

I hope this work inspires readers to look at the world anew and apply time in their daily lives. Much like a screenwriter or director does in film: as a fluid parameter that can be played with, a force that does not only drive the story forward but allows the spectator to look back, (p)revisit places and make space for that which matters most: life and love.

I like to dedicate this work to Tiemen, my friend who passed away two years ago and whom I dearly miss. He wore a watch without dials that read 'NOW'. Whenever I asked him what time it was he would happily say: 'Nu!'. Whenever I miswrote time as 'tiem' in this thesis he was a little present. Thank you for being around, always, even now. You are magnificent and will remain my friend, time and again. Thanks buddy.

¹ S. H. Butcher. The Poetics of Aristotle Aristotle (trans.) (4th ed.). London: Macmillan, 01907.

This work is not exhaustive and only a brief exploration of how metropolitan contexts can be designed differently if we see time as the rich design tool I believe it is. To fire up readers' imagination about what to do with time I start off by sharing a Persian tale that is believed to be written by Rumi.² It is about life as much as it is about time:

There was a king and he once said to the court sages - I have a ring with one of the finest diamonds in the world and I want to hide a message under the stone that can be useful in a situation of extreme despair. I will give this ring to my heirs and I want it to serve faithfully. Think of what kind of message will be there. It must be very short to fit in the ring.

The sages knew how to write treatises, but did not express themselves in one short sentence. They thought and thought, but did not come up with anything. The king complained about the failure of his venture to a faithful old servant who raised him from infancy and was part of the family.

And the old man said to him: "I'm not a sage, I'm not educated, but I know such a message. For many years spent in the palace, I met a lot of people. And once I served a visiting mystic whom your father invited and he gave me this message. I ask that you don't read it now. Save it under the stone and open it only when there's no way out at all." The king listened to the old servant.

After some time, the enemies attacked the country and the king lost the war. He fled on his horse and his enemies pursued him. He was alone. His enemies were many. He rode to the end of the road. There was a huge deep cliff before him. If he fell there, it would be the end. He could not go back, as the enemies were approaching. He already heard the clatter of their horses' hooves. He had no way out. He was in complete despair.

*And then he remembered the ring. He opened it and found an inscription:
"This too shall pass."*

After reading the message, he felt that everything was quiet. Apparently the pursuers got lost and proceeded in the wrong direction. Horses were no longer heard. The king was filled with gratitude to the servant and the unknown mystic. The words were powerful. He closed the ring and set out on the road. He gathered his army and returned to his state.

On the day when he returned to the palace, they arranged a magnificent meeting, a feast for the whole world - the people loved their king. The king was happy and proud. An old servant came up to him and said softly: "Even in this moment, look at the message again."

The King said, "Now I am a winner. People are celebrating my return. I'm not in despair, not in a hopeless situation."

"Listen to this old servant," the servant answered. "The message works not only in moments when everything is bad, but also in moments of victory." The king opened the ring and read: "This too shall pass."

And again he felt a silence fall over him, although he was in the midst of a noisy dancing crowd. His pride dissolved. He understood the message. He was a wise man.

And then the old man said to the king, "Do you remember everything that happened to you? Nothing and no feeling is permanent. As night changes day, so moments of joy and despair replace each other. Accept them as the nature of things, as part of life."

² R. Keyes The quote Verifier: Who Said What, Where, and When. Macmillan. (02006) p. 159–160

1. Introduction

Time is the most valuable possession in our lives yet it's the least understood phenomenon. It puzzles philosophers, scientists and religious leaders alike. Time can change from one moment to the next. We may describe it as a line, a space through which we move forward or a stretch of fabric that forms the galaxy. We compare it to the flowing of a river or the rising tide of the sea. There is no apt way to describe time, its nature escapes us every second. Perhaps humans do not have enough senses to truly make sense of time, because we carry time within ourselves. Or time cannot adequately be defined because time is everything.

Luckily, this thesis is not concerned with everything and only with the social configuration of time. It explores how we can use time as a rich, multi-faceted design tool rather than a monotone variable that passes by uniformly. Understanding time diversity helps to answer the big questions of our time (or better yet, helps us pose the right questions). It is not without a reason that time is said to solve all problems.

Problem statement

The world is increasingly ordered according to clock time. Examples are the 9-to-5 workday, the forty hour workweek, retirement at 67 and 24/7 economies. Both a religious and an economic social construct, clock time legitimizes specific social orders and realities over others. We tend to forget that this singular understanding of time is a very recent phenomenon, a product of chance as much as purpose.³ Once designed as a tool to aid us, the clock dictates our daily lives and reduces us to rushed and homogenous productive masses. We are lived by the machine, rather than the machine aiding us to live for ourselves.⁴

A non diverse (singular) conception of time is problematic because it shrinks the pool of solutions we need to address problems in a lasting way. Debates around time are often centered in dualistic thought and reduced to the factor speed (fast versus slow) or quality (better versus worse) while the debate should revolve around different worlds being possible through *choices*. This thesis unites six possible time concepts in a time diversity framework. Through awareness and inspiration, city residents, city designers and scholars can use the framework to create time-diverse environments.

Academic relevance

Most research on time is dedicated to the world of time measurement, the physical existence of time or speed. Those works that do explore the human experience of time are largely restricted to philosophy and the social sciences and do not look for practical application through design processes. I bridge these two worlds by uniting quantitative as well as qualitative time concepts in an easy-to-use framework.

³ Until 01909 every village in the Netherlands had its own time. Due to the arrival of the railway these times were cynchronized. Verbeek, P. 'Voor de Vorm, interview with Peter-Paul Verbeek, professor philosophy in Humans and Technology, Twente University [presented by Christien Meindertsma], NTR, 02020, <https://www.ntr.nl/Voor-de-vorm/311>

⁴ J. Hermsen, *Kairos, een nieuwe bevlogenheid*, Arbeiderspers, Amsterdam/Antwerpen/Utrecht, 02014 p. 26

The multidisciplinary nature of this thesis is in line with the ambition of the Amsterdam Institute for Advanced Metropolitan Solutions, which is to develop interactive tools that sense the city and interventions that promote livability and sustainability.⁵ A time diversity framework is a perfect example of how social geography can be merged with design of technology. The framework allows researchers from various backgrounds to borrow concepts from other domains and incorporate them in theirs. Disciplines that this thesis draws from include sociology, political science, economics, physics, biology, philosophy, history, archeology, the arts, narrative storytelling and product design.

Social relevance

Some struggles that humanity is facing right now: irreversible climate change, distrust towards institutions, chronic fatigue, resource scarcity, spiritual poverty and economic downturn. Problems cannot be solved with the same level of thinking that created them.⁶ Hence we need new understandings of time and new design practices that shine a light on underlying root causes for systemic failure. Approaches that spark creativity and imagination. The framework developed in this thesis aims to provide readers just that.

The COVID-19 pandemic turned the world upside down and made visible some severe shortcomings of the system we live in, but also the joys of limited economic activity. While the pandemic and ensuing lockdowns were initially seen as a problem impairing our routines, it familiarized us with alternative modes of organization that proved beneficial in several regards. Examples are reduced levels of air and noise pollution, reduced greenhouse gas emissions and higher appreciation of local food and craftwork. Now is the time to implement changes in our way of thinking and adopt alternative frameworks. This diversity framework is one of those innovations.

Research questions

The main question is:

- What does time diversity look like and how can it be embedded in practice?

The four sub questions are:

- How did time keeping practices develop historically?
- What are the characteristics of the six time concepts?
- How did the COVID-19 Pandemic affect the time regime?
- What additions do artists, researchers and activists propose to create a more time diverse world?

⁵ AMS website: <https://www.ams-institute.org/about-ams/>

⁶ This quote is often ascribed to Albert Einstein but there is no record of him saying it. The person who is likely to have ascribed it to him is a former academic turned spiritual named Ram Dass (born Richard Alpert). <https://hsm.stackexchange.com/questions/7751/did-einstein-say-we-cannot-solve-our-problems-with-the-same-thinking-we-used-to>

Outline

The structure follows an hour glass shape, beginning wide in the past, narrowing down towards the present and broadening up towards the future. The thesis is composed of three sections: the introduction and the methodology section, followed by a historical background and theoretical framework on time concepts, ending with empirical observations during the COVID-19 pandemic and alternative time configurations.

The first chapter presents the problem and the topic of investigation, and why it is necessary to study this in a metropolitan context.

Chapter two is concerned with how a time diversity framework is created and applied to the world and how the researcher went about gathering material that scores high on trustworthiness.

Chapters three and four serve as the theoretical framework. Chapter three describes the historical development and spread of time measurement tools and greater dependencies society develops with regards to these tools. Chapter four analyses the imagery and discourse that lie behind each of the six time concepts.

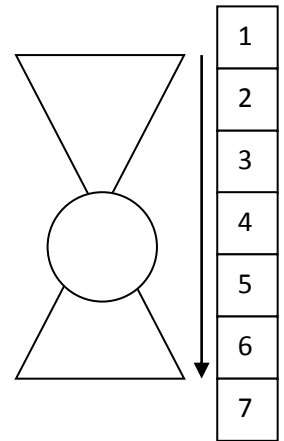
Chapter five and six serve as the result section of this thesis that demonstrate the usefulness and meaningfulness of the framework as developed in chapters three and four. Chapter five investigates how the COVID-19 pandemic affected the separate time concepts and how the time regime sifted as a whole. It is primarily based on news stories and observations done during the Pandemic. Chapter six lists several interventions per time concept that can make cities more time diverse. This chapter is primarily based on interviews with artists, activists and researchers.

Writing style

This work takes on a more unusual than one would expect from a technical university thesis in three respects: 1) It is philosophical in nature and meanders through the topic in an essayistic manner. 2) The work is larded with visual examples, expressions and stories that reinforce the line of argumentation 3) The work is written in the first person, inspired by Bruno Latour.⁷ The latter is based on a postpositivist view of reality, arguing there is no objective reality and research findings are necessarily affected by personal biases. It is more explicit to acknowledge these biases and make these known than proclaiming an Objective Truth. I do my best to prevent bias by annotating personal points of views in the footnotes when necessary.

Scholarly tradition

This thesis builds on critical, feminist, ecological and interpretivist tradition. It aims to uncover the mechanisms that cause power inequality and seeks to provide tools to establish a more just, inclusive, healthy and unique world. It is multi-disciplinary in



⁷ B. Latour, *Aramis: or the love of technology*, Harvard University Press, Cambridge, 02002

nature, drawing from sociology, philosophy, psychology, physics, history, herstory,⁸ chronobiology, neuroscience, anthropology, the arts and narrative storytelling.

Limitations

This thesis is Eurocentric by default, reproducing knowledge and experiences from the Western world and the Netherlands in particular. Not only in focus but also in the sources that are consulted. I did my best to include alternative understandings of time from non-Western cultures but the goal was not an accurate ethnographic study, rather it was to provide a general overview of time concepts and the possibilities that present themselves when looking at time in a broad manner. Observations about time, especially the ones in chapter five about the COVID-19 pandemic, may not hold for cultural contexts beyond the Netherlands.

Time was scarce and abundant during the writing of this thesis. Due to the COVID-19 pandemic many people had time available to help out. The pandemic and the Dutch government granted me time to write this thesis since a half year of study delay would be reimbursed. The COVID-19 pandemic also made it harder to write because contact with peers was lacking and time seemed to stand still. The COVID-19 pandemic made it harder to do physical research. The research was designed in a way that it could be completed with online tools.

The fact that the COVID-19 pandemic is still ongoing makes it difficult to draw conclusions so soon. Many processes require more time and a little more distance. Questions about space-time as a physical reality are left out of consideration since this would needlessly complicate matters.⁹ While crafting the framework, four concepts of time were merged into two because they had too much in common: Chronological time and exact time formed clock time. Cyclical time and matriarchal time formed eternity. In the literature I did not come across many more established concepts of time, though dream time and circadian rhythm could be considered separately, as well as zeitgeist and generational time.

The language in which this thesis was written can be seen as a limitation and an opportunity. Some attitudes towards time which cannot be translated in English. Some words may lose depth and precision, as Foivi Psevdu points out while translating the word Eudaimonia from Greek.¹⁰ The opportunity lies in accessibility to a wider audience, which was reinforced by using universal symbols in the framework.

Four specific phenomena did not fit neatly into single categories of time: hourglasses, generations, currency and gates. For clarity I added footnotes to explain my choice.

⁸ History is the passing of events as described from a male point of view, herstory the female counterpart. In this dichotomy, History is concerned with strategy and political decision-making by elites under extraordinary circumstances. Herstory looks at longer stretches of time and pays attention to harmonious relations in society.

⁹ For natural scientific observations about time I recommend Carlo Rovelli's 'The Order of Time'. For a philosophical analysis on black holes and the complementary role of religion in understanding time I suggest Heino Falcke's 'Licht in de Duisternis'.

¹⁰ F. Psevdu, "Performance artist and time researcher" [interview], 10 June 02020

As women are underrepresented in technical studies I chose to interview more women than men (seven to two). This may present a non-balanced gender division but since my own views are colored by the male gaze I expect the balance to be even. I hope that others do their best to include more women in exact studies because female voices need to be heard more often.

Metropolitan Context

Space and time are closely related.¹¹ Designing solutions for metropolitan areas is therefore an exercise not only in space but also in time. Our sense of surrounding is more direct than our sense of time, first and foremost because time is less visible, so how can we make sure that time as a variable is not overlooked? How can we incorporate time in the design of our daily life in metropolitan areas?

Time passes differently between cities and between city and countryside.¹² While traffic and commercial activity may be ceaseless in densely populated city centers, suburban areas may feel quiet and relaxed. City residents suffer time-related health problems such as increased stress, insomnia, lack of rest and lower perceived safety compared to regional areas.¹³ A diverse conception of time could aid city residents to tackle these problems by organizing their environment differently and making their time more versatile. The time diversity framework can help city designers to create time abundant spaces.¹⁴

¹¹ Einstein's relativity theory posits that as space expands, time slows down. Every object affects the particles around it (and therefore time) through gravity. The bigger the mass of the object, the greater the pulling force. The faster particles move, the faster time goes by. While Newton argued there was an objective time in the universe, Einstein proved time is situational, i.e. relative, dependant on the mass and speed of the observer C. Rovelli, *The order of time* Penguin Books, 02018, page 35.

¹² Urban-Rural is a superficial divide. There are diverse degrees of urbanization and diverse types of settlements. Social geographer Josse de Voogd proposes the term 'middleland' to incorporate qualities of city and countryside. J. De Voogd, *Gelaagd land*, Atlas Contact, Amsterdam, 02020

¹³ Ibid.

¹⁴ From a patriarchal and historical view, metropolises are centers of capital and of power that necessarily increase speed as actors compete against each other in a race to the top. In a matriarchal and herstorical view, cities are biotopes made of complex and interdependent actors in which time is a fluid and stretchable fabric.

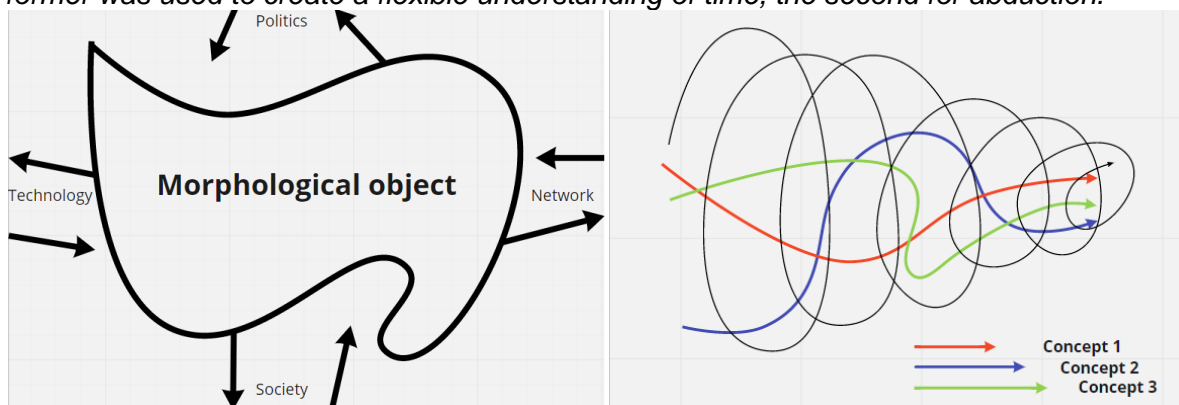
2. Methods and data collection

In the following chapter I describe the methods employed and the steps taken to ensure trustworthy and authentic research. The main methods were design thinking, social deconstruction, literature study, visual cataloging and in depth interviews.

Design Thinking

The principal tool employed to craft the framework was design thinking. Maarten van van der Sanden, associate professor Communication and Design for Innovation at TU Delft guided this process by explaining innovative ways to generate and sythezise ideas and exchanging knowledge from his own design practice.

Figure 1: The morphological object and the design spiral, two key design thinking tool. The former was used to create a flexible understanding of time, the second for abduction.



Design thinking aims to elicit interaction with stakeholders. It should intuitively invite them to make their needs heard.¹⁵ The aim is to empower people to change their state of mind and subsequently their environment by solving problems through creativity. Van der Sanden mentions a wicked tan gram puzzle that is purposefully unsolvable, the pieces in the box deviating from the picture on the box. In the words of Carol Lee Bacchi, it represents a performative act: the constitution of social reality through perception, beliefs and behavior.¹⁶ Maarten van der Sanden explains that morphological objects create a shared experience and a shared understanding between participants, from builders to policymaker from parents to children. Just the motoric movement of pulling two things apart activates the brain to think differently. The morphological object may stand for the real life puzzle or project at hand to be solved and mirror its shape, qualities and characteristics. But it may also be a collective process that spurs mutual understanding between citizens.¹⁷¹⁸

¹⁵ M. van der Sanden, "associate professor Communication and Design for Innovation at TU Delft" [interview], 12 August 02020

¹⁶ C. L. Bacchi, *Analysing Policy: What's the Problem Represented to Be?*, The University of Adelaide press, 02009

¹⁷ M. van der Sanden, "associate professor Communication and Design for Innovation at TU Delft" [interview], 12 August 02020

¹⁸ An example is a project by Nynke Rixt-Jukem and Wad & Design on the island of Schiermonnikoog. Two opposing groups were invited to breathe the old tradition of Ôleboerden (owl board) back to life. By designing and shaping the future, both parties grew common ground <https://nynkerixtjukema.nl/werk/uleboard/>

1. Empathise

There are five steps to design thinking. The first step is to empathise, which involves understanding the problem to its core. It took me quite some time to find out what the true problem was. In the first stage of this writing process I was studying how the European rail network could be harmonized through policy and infrastructure. I visited the international rail convention and took multiple rail trips to find out strengths and weaknesses of the system. Being little excited about the topic and not knowing how to continue I had dinner with a friend who is an electronic engineer. I asked him why he took the plane or car to Poland rather than the train. He gave an answer I did not expect: because of time. Due to his 38 hour contract he rather spends the most time on his destination than lose hard-earned free days. It hit me that my research showed tremendous confirmation bias and perhaps I could help my friend better with more time, rather than a faster train. Perhaps homogenization and optimization were not the solution but the problem. From that moment on I started reading into time and the various forms in which it comes. This phase lasted from February to May.

2. Define

The second step is to define the problem and the main concepts by combining existing knowledge and experiences with new research and finding.¹⁹ Peter Peters' doctoral research 'Albertine in a Hurry' and Joke Hermsen's 'Stil de Tijd' were recommended to me by Jeroen de Vries and Ellen Genet, providing me with the first three time concepts for the framework: clock time, temporal orders and subjective time. Seeing the documentary *Feel the Night* and running into fellow filmmaker Jasmijn Schrofer brought circadian rhythm into the picture. The eternity concept followed when sacral time and matriarchal time had much in common and could replace cyclical time. The last form of time came forth from the COVID-19-pandemic which made clear how geographical, cultural and socioeconomic context determine time experience. The new research goal was 'to assemble language and concepts that give meaning to current developments'.²⁰ The problem was defined as clock time dominance preventing people to live a time-diverse life. This phase lasted from May to August and overlapped with the ideation phase.

3. Ideate

The third step of design thinking is about the generation of new ideas, so called abduction. It comes in two forms, triple loop learning and the double diamond. Triple loop learning means the design process creates an action, teaches the designer how to design better and provides information on what the designer's position is in the world: is it doing the right thing?²¹

¹⁹ M. van der Sanden, "associate professor Communication and Design for Innovation at TU Delft" [interview], 12 August 02020

²⁰ I almost went astray here by wanting to prototype a political party. Thanks to my supervisors the scope of my research remained restricted to a feasible topic that would incorporate the effects of the COVID-19 pandemic on time experience.

²¹ M. van der Sanden, "associate professor Communication and Design for Innovation at TU Delft" [interview], 12 August 02020

The double diamond allows designers to take steps forward and backward in the design process. Through decision-based inquiry and inquiry-based decision the designer gets a more profound understanding of the topic by diverging and converging. The solution that is reached at the end probably does not match the goal that was formulated at the beginning.²²

The ideation phase started by requesting interviews with time experts, who thanks to the COVID-19 pandemic, were available and interested. Nine semi-structured interviews were held digitally through Zoo and by phone. The goal was to procure more precise information on time concepts and formulate alternatives to the time regime for the post-COVID-19 world. The interviews took between thirty minutes and two hours. Though questions were adapted to the specific backgrounds of experts, the following six questions guided most interviews.

1. Are there, next to Chronos and Kairos, other time concepts that can be distinguished from non-Western Cultures?
2. What words and images are lacking in current society with regards to a complete time experience?
3. What time customs and practices resurged during this Corona panemic?
4. What, according to you, is the best remedy against haste or against the dominant return-on-investment-thinking?
5. How does your (art)work contribute to a 'more 'time-oriented' existence?
6. What name would you give to the coming era?

I expected the interviews to be useful for chapter five and six but the interviews also enriched the time diversity framework. Writing the transcripts and adding notes proved a useful iterative exercise that generated new ideas. Conducting the interviews lasted from June till August, reading new literature lasted until November.

4. Prototype

Central questions within the fourth stage of the design process are: What should be the shape? What does it achieve? Whom does it serve? What response should it elicit? What qualities should it promote?²³ Through morphological mapping a range of functions and solutions were compiled, retired, expanded and fine-tuned.

Figure 2: Morphological map listing goals that should be achieved through the framework

Solution ↓ Function →	Play	Connection	Rest	Freedom
Reduced city waste	Repair café			Craftmanship
Better health	Living streets		Digital detox	
Restored rhythm			Dark Sky Park	
Reduced stress		Nap temple		
Money-free society			Commercial ban	Time bank
Loneliness		Mixed living		

²² M. van der Sanden, “associate professor Communication and Design for Innovation at TU Delft” [interview], 12 August 02020

²³ Crafting an interactive tool beyond the framework turned out too ambitious, this exercise may come later.

The shape was decided to be a visual matrix. The matrix was filled with concepts through iterative play, such as coming up with transport modes, instruments, senses or elements that match each time concept. Phenomena that were convincing were added, irrelevant phenomena removed. Prototyping lasted from August to November.

Figure 3: Example of a creative iteration to diverge and converge time concept definitions

	Art form	Element	Instrument	Music genre	Continent
Clock time	Photography	Fire – Tokyo	Horn Organ	Electronic Pop	N-America – New York
Temporal order	Audiovisual	Aether – Paris	Choir	Jazz Fugue	S-America – Havana
Situational	Poetry/prose	Wind – Bhutan	Voice	World music	Australia – Brisbane
Circadian	Sculpting Architecture	Earth – Atacama	Drums	Reggae	Africa – Cape town
Eternity	Painting Theatre	Void – Ireland	Harp Flute	Classical Folklore	Europe – Athens
Duration	Music Gastronomy	Water – Orvieto	Piano Guitar Violin	Minimal and repetitive	Asia – Guilin

5. Test

In the final stage it is up to the designer to take all the knowledge and experiences from the previous four steps and turn this into an attractive combination that presents a solution to a (new) problem.²⁴ This was done by assessing if the framework was helpful to track changes in the time regime during the COVID-19 pandemic. Another test was classifying interventions that make the city more time-diverse with the help of the framework. This phase lasted from November till December.

Social Deconstruction

Two critical analysis tools were used to craft the time diversity framework. The first is *thick description and weak theory* by Jessica Graham and Katherine Gibson, the second *What's the problem represented to be* approach by Carol Lee Bacchi.

Katherine Gibson and Julie Graham developed a diverse economy framework with which capitalism is subdivided into five categories with each three subcategories. They liken social phenomena such as 'capitalism' to icebergs that are much bigger than the one would expect at face value. The most prominent terms dictate our understanding of it while below the surface, much more complexity is to be found. For instance, the informal economy and voluntary work are major parts of the economy but left out in official economical statistics. By crafting a more diverse framework with multiple concepts, justice is done for those people excluded from policy debates.²⁵

²⁴ M. van der Sanden, "associate professor Communication and Design for Innovation at TU Delft"[interview], 12 August 02020

²⁵ J. Graham and K. Gibson, Rethinking the Economy with Thick Description and Weak Theory, Current Anthropology, vol. 55, no. 9, 02014

The authors further state that it is important to use thick description and weak theory, meaning that academia should go at length to describe complete social processes, including possible blind spots in the line of argumentation. Rather than crafting absolute theories which are only valid to describe a small amount of reality, they suggest constructing weak theories that may not provide certain explanations but are relevant for a wider amount of situations and contexts.²⁶

Figure 4: the Diverse Economy as classified by Gibson-Graham

ENTERPRISE	LABOR	PROPERTY	TRANSACTIONS	FINANCE
CAPITALIST Family firm Private unincorporated firm Public company Multinational	WAGE Salaried Unionized Non-union Part-time Contingent	PRIVATE Individually owned Collectively owned	MARKET Free Naturally protected Artificially protected Monopolized Regulated Niche	MAINSTREAM MARKET Private banks Insurance firms Financial services Derivatives
ALTERNATIVE CAPITALIST State owned Environmentally responsible Socially responsible Non-profit	ALTERNATIVE PAID Self-employed Co-operative Indentured Reciprocal labor In-kind Work for welfare	ALTERNATIVE PRIVATE State-owned Customary (clan) land Community land trusts Indigenous knowledge	ALTERNATIVE MARKET Fair and direct trade Alternative currencies Underground market Barter Co-operative exchange Community supported agriculture, fishing etc.	ALTERNATIVE MARKET State banks Cooperative banks Credit unions Govt. sponsored lending Community-based financial institutions Micro-finance Loan sharks
NON-CAPITALIST Worker cooperatives Sole proprietorships Community enterprise Feudal enterprise Slave enterprise	UNPAID Housework Family care Volunteer Neighbourhood work Self-provisioning Slave labor	OPEN ACCESS Atmosphere Water Open ocean Ecosystem services Outer Space	NON-MARKET Household sharing Gift giving State allocations/appropriations Hunting, fishing Gleaning, gathering Sacrifice Theft, piracy, poaching	NON-MARKET Sweat equity Rotating credit funds Family lending Donations Interest-free loans Community supported business

Carol Lee Bacchi's 'What's the problem represented to be?' method is directed at policy analysis. She emphasizes the need to keep asking the question what problem is at play because social agents have legitimate and illegitimate interests to frame the problem and the accompanying solution. For instance, governments putting a sugar tax on soda's may seem a legitimate way to discourage sugar consumption, but in fact divert attention from the supply side of economics. In fact a sugar tax legitimizes soda sales and leaves the root problem unquestioned, namely; how can we ensure that people have a healthier diet? This question leads to wholly different solutions that may genuinely be in citizens' interests.²⁷

The second concept Bacchi introduces is performative act. Humans' sense of the world is mediated through language, thus the words we use affect change. Behavior is preceded by belief and belief is preceded by perception. Only by questioning the foundation of our society through the words and images that we frequent, can we change reality in the course we deem desirable.²⁸

Authors like Carol Bacchi and Gibson-Graham provide tools to deconstruct any 'given'. With them we can come to an all-encompassing understanding of the world.

²⁶ J. Graham and K. Gibson, Rethinking the Economy with Thick Description and Weak Theory, Current Anthropology, vol. 55, no. 9, 02014

²⁷ C. Bacchi, *Analysing Policy: What's the Problem Represented to Be?*, The University of Adelaide press, 02009

²⁸ Ibid.

Literature study

Several classic works on time were consulted to write this thesis. First of all Henri Bergson's 'Free Will and Time'²⁹ and Joke Hermsen's 'Stil de Tijd'³⁰ and 'Kairos'³¹. Byung-Chul Han's 'The Scent of Time'³² and Allen C. Bluedorn's 'The Human Organization of Time'³³ proved masterful explorations of time as a social construct. Carlo Rovelli's 'The Order of Time'³⁴ and Steven Hawking's 'A Brief History of Time'³⁵ were used to get a grip on the physical properties of space-time. Roland Barthes' 'Camera Lucida'³⁶ was used to deduce meaning from images through semiotics. The most useful sociology books were 'Albertine in a Hurry'³⁷ by Peter Peters and two books by Jaap Goudsblom: 'Fire and Civilization'³⁸ and 'The Time Regime'³⁹. Marcel Proust's 'In Search of Lost Time'⁴⁰ figures in many sources. Though I did not find the time to read the seven parts and twelve million words, it was an indirect source. Popular scientific books were consulted as well, notably 'Het Recht van de Snelste'⁴¹ by Thalia Verkade and Marco te Brömmelstoet, 'Licht'⁴² by Gemma Venhuizen and 'Why We Sleep'⁴³ by Matthew Walker. Stewart Brand's 'The Clock of the Long Now'⁴⁴ and Rob Hopkins' 'From What Is to What If'⁴⁵ proved useful to imagine other worlds and give them hands and feet.

Many digital articles were consulted to write about the development of time measurement tools as well as chapter five about the COVID-19 pandemic.

Visual cataloguing

The argument put forward in this thesis is supported by a wide array of expressions, images, stories and symbols. They make it easier to understand, classify and recognize the time concepts in the real world. Appendix A lists the full collection of images. Appendix B lists cultural expressions on time I gathered during this research. The symbols used in the framework were retrieved from www.thenounproject.org Images were collected from Wikimedia commons, movies or taken by me personally.

²⁹ H. Bergson, *Time and Free Will, an essay on the immediate data of consciousness*, George Allen & Unwin Ltd., Edinburgh, 01950

³⁰ J. Hermsen, *Stil de Tijd*, de Arbeiderspers, Amsterdam/Antwerpen, 02009

³¹ J. Hermsen, *Kairos, een nieuwe bevoegenheid*, Arbeiderspers, Amsterdam/Antwerpen/Utrecht, 02014

³² B.C. Han, *The Scent of Time*, Polity Press, Cambridge, 02018

³³ A.C. Bluedorn, *The Human Organization of Time, Temporal Realities and Experience*, Stanford University Press, 02002

³⁴ C. Rovelli, *The order of Time*, Penguin Books, 02019

³⁵ S. Hawking, 'A Brief History of Time', London, Bantam, 1988.

³⁶ R. Barthes, *Camera Lucida* Hill and Wang, New York, 1981

³⁷ P. Peters, *De Haast van Albertine*, De Balie, Amsterdam, 02003

³⁸ J. Goudsblom, *Het Regime van de Tijd*, Meulenhoff, Amsterdam, 01997

³⁹ J. Goudsblom, *Vuur en Beschaving*, Uitgeverij Ooievaar, Amsterdam, 02001

⁴⁰ M. Proust, *À la recherche du temps perdu*, Gallimard, 01927

⁴¹ Te Brömmelstoet, T. Verkade, *M Het recht van de snelste*, De Correspondent, Amsterdam, 02020

⁴² G. Venhuizen, *Licht*, Atlas Contact, Amsterdam, 02017

⁴³ M. Walker, *Why We Sleep: Unlocking the Power of Sleep and Dreams*, Scribner, New York, 02017

⁴⁴ S. Brand, *The Clock of the Long Now*, Weidenfeld & Nicholson, London, 01999

⁴⁵ R. Hopkins, *From What is to What If*, Chelsea Green Publishing, London, 02019

In depth Interviews

I chose to interview investigative activists, artists and light researchers because they have a different relation to time. They are working to realize or imagine a future that is not there yet, progressing our understanding of the world. They also formulate creative ideas that can expand our horizon or our view of the sky. I purport that artists are different because they see with different eyes.⁴⁶ They also quite literally have a different internal clock and may be less susceptible to the rigor of regimes in general. The same goes for intuitive researchers and philosophers, they have the ability to pre-sense the times to come which makes it valuable to consult them and combine their views. It is at the intersection of ideas, at the border of what is known, that interesting things happen and innovation takes place.⁴⁷

Trustworthiness, authenticity and triangulation

Guba and Lincoln distinguish two methods for assessing qualitative research: trustworthiness and authenticity. The former is established through credibility, transferability, dependability and confirmability. Authenticity is established through meaningfulness and usefulness.⁴⁸

Authenticity was guaranteed by keeping notes during the research in a log book and transcribing interviews. The former method is usually at play when performing ethnographic field research. In my case I kept a detailed account of choices and selections made throughout the research, from epiphanies during the writing process to interesting newspaper articles during data collection. The transcriptions were complemented with notes taken during the reading of the transcriptions so the thought process of the author is clear.

Trustworthiness was established by making use of extensive literature and including page numbers in the reference system. The thesis was proofread by several persons to confirm whether personal views and values did not result in biased research and all topics were covered with adequate attention and not simply personal interest. Throughout the writing I did my utmost best to provide readers the room to disagree I hope to present my findings as a query for knowledge that is an ongoing process rather than hard facts.

Triangulation served as a third measure to ensure the findings are not biased and an outcome of a single research process. Participant observation, semi-structured interviews and design thinking were combined with literature study and visual cataloguing. While the former three can be considered creative and person-dependent processes, the latter are based on collective shared understandings that would not deviate much from other researchers' perspective.

⁴⁶ Poet Marjolijn van Heemstra argues against this point that everyone is able to imagine if they make the time.

⁴⁷ Kwartslag, Brainwash, Marjolijn van Heemstra over Stewart Brand, [tv-programme] Human, 02017

<https://www.human.nl/kwartslag/kijk/overzicht/marjolijn-van-heemstra.html>

⁴⁸ Y.S. Lincoln and E.G. Guba, *Naturalistic Inquiry*. Newbury Park, CA: Sage Publications 01985

Henk Hofland writes in his essay 'No Time' (01955)⁴⁹: "Most people are not able to do something that requires much time, [they] are addicted to the fast transition between activities, prefer the newspaper over a book, the photograph over a written message and the telephone over a letter by mail. (...) The holidays are longer, the working days are shorter but people have no time. A faster car, motorcycle, moped, but no time. Women have dish washers, vacuum cleaners, washing machines and despite this motorization of the household, no time. Bosses have secretaries, the labourer an eight-hour working day, but nobody has time."

The fact that Hofland links women to household apparatus and men to mopeds and cars is a good example of gender roles being different 65 years ago. An example of zeitgeist and situational time, one of the concepts that will be described in the next chapter.



The invention of the number 0 in the Indo-Arabic world unquestionably led to scientific advancements and countless of new cultural practices. Common language and symbols serve as grammar for social constructs that require education, exchange and proven benefits before becoming some form of standard. The invention of bits in the previous century and qubits / quantum computers in 02020 may be two such transitions, introducing a new manner of calculating. This opens up new pathways for diversity but also more homogenization and dependencies. New systems build on the old systems and continue to coexist, as is demonstrated by our continued use of Roman numerals in society.

Qubits enhance calculating speed, they are a mechanical invention in line with the clock and are another invention that limit low-key solutions to problems. Concepts that do oppose the current time regime would be abundance, time banks, no more arms trade, food for everyone, ethical trade relationships, sortitioned citizen assemblies instead of short term elected politicians, bicycle cultures, living streets, commercial free zones, locality and a restored view of the Milkyway.

This too, is arguing in the line of opposites, more or less consumption, more or less awareness. There ae lots of different types of cities and ways of life. Keeping that richness is more valuable than anything else.

⁴⁹ H. Hofland,, Geen tijd (op zoek naar oorzaken en gevolgen van het moderne tijdgebrek), essay, Uitgeverij Scheltema en Holkema, 01955



The movie *La Guerre du Feu* (1986) tells the story of the first humans mastering the art of making fire. The movie demonstrates how valuable fire was to early humans. According to sociologist Norbert Elias, it was the start of civilization processes. As humans mastered fire, they also became dependent on it, not being able to survive without it. According to Jaap Goudsblom, the same applies for time technologies creating huge opportunity and initial benefits but also greater dependencies in case the underlying mechanisms fail.

3. The historical development of the time regime

Aristotle described time as an observer registering changing events, without the observer there is no time.⁵⁰ It is logical then, that time experience changed as the number of observers and the number of events on the planet increased. Hence, in prehistoric times, perceived time was radically different from that of humans 70.000 years later. Not only because humans lived longer and rose in numbers, also because their surroundings shifted dramatically.⁵¹ Language code and storytelling brought many intermediate forms of time experience, as did diversifying social strata. Though presented in a chronological order, in many cases our understanding of time stood still during long intervals, retrogressed as civilizations ended or sped up through the spread of practices that brought tremendous benefit. Jaap Goudsblom describes this as processes of intensive and extensive growth. While becoming more uniform over time, time experience also diversifies as it is adopted and adapted by every culture.⁵² Once a reliance on an invention is developed and the population dependant on its benefits, it is difficult to undo intensification and extensivication.⁵³

The beginning

The first time observations were based on natural conditions; the sun's trajectory through the sky, shadows following the sun, lunar cycles, the length of days and seasons, availability of prey and active hours of predators. As the climate changed hunter gatherers turned into agrarians. Population growth created greater dependency on the land and the need to measure resources as well as time. Those tribes that were able to estimate the right time for harvest were more likely to survive than those tribes who did not, it is even thought that religion originated in priests and shamans who could predict the weather in convincing ways.⁵⁴

Another climatic event caused Indo-Europeans to travel west from Siberia leading to land scarcity and resource rivalry.⁵⁵ This in turn spurred clans to retreat in protected settlements which lay the foundation for societies. Rivalry and rulers' preoccupation with conquest resulted in labor specialization, trade, capital accumulation, forced labor and slavery.⁵⁶ Quantification tools were developed to levy taxes to fund expansion wars.⁵⁷ Productivity is enhanced by the forceful implementation of social regimes, including language calendars, festivities, days on which to trade and days on which to worship.⁵⁸

⁵⁰ Rovelli, *The order of time* Penguin Books, 02018, page 59

⁵¹ J. Goudsblom *Het Regime van de Tijd*, Meulenhoff, Amsterdam, 01997 p

⁵² J. Goudsblom, *Vuur en Beschaving*, Uitgeverij Ooievaar, Amsterdam, 02001, p.62

⁵³ Similar dependencies come forth from fire, agrarian and industrial regimes: J. Goudsblom *Het Regime van de Tijd*, Meulenhoff, Amsterdam, 01997

⁵⁴ J. Goudsblom, *Vuur en Beschaving*, Uitgeverij Ooievaar, Amsterdam, 02001, p.76

⁵⁵ A. van der Meer, *The Language of MA the primal mother*, PanSophia-Press, Den Haag, 02015

⁵⁶ H.M. Schwartz, *States versus markets, the emergence of a global economy*, Palgrave, New York, 02010

⁵⁷ Ibid.

⁵⁸ A. van der Meer, *The Language of MA the primal mother*, PanSophia-Press, Den Haag, 02015

Early cities

Surplus food was stored in fortified and protected places to keep others from inside or outside the tribe from stealing it. Fire was used to defend it, either through weaponry or preemptive strikes of rivaling tribes. Storytelling, mythology and art work were used to craft imaginary collectives that legitimized power resting with specific families.⁵⁹ Rivalry between tribes led to development and the spread of knowledge between tribes and continents. It is the start of a standardization process through which cities developed uniformly to each other but also uniquely from each other.⁶⁰

Artificial light from oil lamps enhanced productivity. As the sizes of settlements grew, warlords turned into kings that centered in gated communities, creating a court culture and knowledge production. Clergy was replaced by new kings that claimed connection to the divine.⁶¹ The Julian calendar and Roman holidays were introduced throughout the Roman empire 45 B.C. As with most human processes, the adoption of inventions and practices was based on cultural exchange between geographically diverse locations, as homogenization between societies took place, differences within society increased.

Around 00400 the Church replaced the 8 day Roman week indicated with capital letters with a 7 day numerical Roman-Christian one. More precise clocks and algebra are developed in the Indian, Iranian and Ottoman empires, and reach Europe through the silk route. In 00525 a Scythian monk invents the *computus*, a system to project future dates of easter. In the process, the number 0 is adopted from the Arabic world.^{62&63} The first waterclocks with an escapement mechanism are invented in China in 00725 but it takes centuries for them to find their way to Europe.⁶⁴ Towns at the intersection of these routes become centers of knowledge where geometry, alchemy, rhetorics and the arts flourish.

Early modernity

The invention of the escapement mechanisms around 1300 increases clock's accuracy dramatically and spreads around Europe rapidly.⁶⁵ Clocks become more reliable aids for timekeeping. The expansion of organized religion in Europe leads to the construction of chapels, churches and cathedrals. The tower bells announce prayer, masses and public festivities and reinforce the time regime.⁶⁶

⁵⁹ Ibid.

⁶⁰ Ibid.

⁶¹ J. Goudsblom, *Het Regime van de Tijd*, Meulenhoff, Amsterdam, 01997

⁶² The Roman yearcount did not include the number 0. As Jewish culture symbolizes the beginning of life with circumcision on the 8th day after birth, the 25th of December is established as the birthday of Jesus, with the year count beginning on the 1st of January, the start of Jesus' social life. There is no year 0 (Bluedorn, 02003).

⁶³ A.C. Bluedorn, *The Human Organization of Time, Temporal Realities and Experience*, Stanford University Press, 02002

⁶⁴ Ibid.

⁶⁵ Ibid.

⁶⁶ Hermsen, J., *Stil de Tijd*, de Arbeiderspers, Amsterdam/Antwerpen, 02009

In the 1500's, naval exploration and mapping is aided by more accurate hour glasses.⁶⁷ Conquest and trade with new continents spurs the Renaissance period. Scientific experiments become more popular as a means to innovate profitable enterprises.⁶⁸ A schism in the sciences separates physics and chemistry from alchemy, mysticism and religion. It leads to more exact measurement and quantitative methods being used to describe and explain the world.⁶⁹ In 1582 the Gregorian Calendar is introduced by adding leap-years to the Julian calendar.

Modernity

During the French Revolution mathematicians Jean-Baptiste le Rond d'Alembert and Joseph-Louis Lagrange adopt the letter t from the field of mechanics and inserted the letter in their encyclopedia.⁷⁰ Artificial lighting becomes available in cities. This extends productive hours into the nighttime.⁷¹

Natural streams of energy (wood, water, sun, wind) are slowly replaced by fossil supplies of stored energy such as peat, coal, gas, oil.⁷² The invention of the stock market makes for variable interests on property and added competitive advantage for companies who act faster than others. Large scale production processes proliferate, population size explodes, further migration and colonial practices lead to standardization around the world.⁷³ By the 1800's, elites demonstrate their wealth by staying up late causing nighttime entertainment to professionalize and sleep patterns to change.⁷⁴ Ever more accurate clocks and automation processes are invented to raise production levels and company profits. It becomes the default modus operandi in business operation. Logistical planning and long term schedules are employed to project future gains, scheduling and standardized agenda's take flight.⁷⁵ Pocket watches become a fashionable status symbol as those who know the time are seen to be successful.⁷⁶ Industrial processes spread over the world after the invention of the steam engine. Locomotives in trains and boats speed up travel time, resource extraction and capital accumulation. Greenwich Mean Time is introduced during an international conference in October 1884 as a compromise between French and American government.⁷⁷

⁶⁷ H. Hooijmaaijers, 'Voor de Vorm, interview with Hans Hooijmaaijers head of collection of Rijksmuseum Boerhaave' [presented by Christien Meindertsma], NTR, 02020, <https://www.ntr.nl/Voor-de-vorm/311>

⁶⁸ A.C. Bluedorn, *The Human Organization of Time, Temporal Realities and Experience*, Stanford University Press, 02002

⁶⁹ Ibid.

⁷⁰ Lawrence, S., Life, Architecture, Mathematics, and the Fourth Dimension. *Nexus Netw J* 17, 587–604, 02015

⁷¹ A.R. Ekirch, *At Day's Close: Night in Times Past*, W. W. Norton & Company, London, 02006

⁷² J. Goudsblom, *Vuur en Beschaving*, Uitgeverij Ooievaar, Amsterdam, 02001

⁷³ Ibid.

⁷⁴ A.R. Ekirch, *At Day's Close: Night in Times Past*, W. W. Norton & Company, London, 02006

⁷⁵ H.M. Schwartz, *States versus markets, the emergence of a global economy*, Palgrave, New York, 02010

⁷⁶ A.C. Bluedorn, *The Human Organization of Time, Temporal Realities and Experience*, Stanford University Press, 02002

⁷⁷ J. Goudsblom, *Vuur en Beschaving*, Uitgeverij Ooievaar, Amsterdam, 02001

The Long Twentieth century

By the 1870's mass consumption goods become more broadly available and labor laws are adopted in the West. Sports and hobbies take flight and lead to organized groups of citizens pursuing arts or politics, leading to census and later universal voting rights.⁷⁸ Newspapers and telegraphs concern people with the issues of the day and allow for well connected transportation methods and interconnected financial systems.⁷⁹

By the 1900's the automobile dramatically increases people's personal travel range and perception of time. Unemployment gets registered, utility is maximized. After the Second World War the 40-hour workweek and paid holiday leave are introduced in the welfare state.⁸⁰ The oil and gas crisis of 1970 leads to daylight saving time, meaning the clock is advanced during months with more daylight in Europe and Australia and turned back during darker months.⁸¹ As light bulbs become more readily available and the share of agrarians in the workforce drops, work schedules get more and more defined by 9 to 5 office hours rather than the light of day.⁸²

Contemporary history is characterized by globalization, further capital accumulation and homogenization practices. Time duration is matched to the time it takes to count 9.192.631.770 vibrations in a cesium atom.⁸³ The invention of television and computer screens alters people's daily routine dramatically, adding up to 8 hours and 33 minutes per person per day in the Netherlands.⁸⁴ The invention of internet makes it possible to bridge time zones and trade information in 'realtime'. Parts of the population try to break free from predictable time patterns but are often still caught in clocktime. Even holidays have become functional, meant to discharge stress that is gained throughout the rest of the year.

⁷⁸ P. Caljé, P. and J. den Hollander, *De lange twintigste eeuw, Van 1870 tot heden*, Spectrum, Amsterdam 02011

⁷⁹ P. Girard, *L'histoire économique contemporaine*, course followed at SciencesPo Paris, 02012

⁸⁰ M. Bovens, *Openbaar bestuur, beleid, organisatie en politiek*, Wolters Kluwer, Amsterdam, 02017

⁸¹ D. Prerau, *Seize the Daylight: The Curious and Contentious Story of Daylight Saving Time*. Thunder's Mouth Press, New York, 02005

⁸² N. Rixt-Jukema "Architect and darkness activist", [interview], 23 June 02020

⁸³ De Vries, S., *De Kunst en de Klok. Mister Motley*. 10-12-2017. <https://www.mistermotley.nl/art-everyday-life/de-kunst-en-de-klok> (Accessed on 10 July 02020)

⁸⁴ Sociaal en Cultureel Planbureau (SCP), *Tijd in Kaart*, Den Haag, december 02016

4. Types of time

This chapter describes the result of the three quantitative time concepts, followed by three qualitative time concepts. For each time concept the ordering principle, the most important thinkers and their symbols are analysed, leading to a subset of characteristics. The chapter concludes with a time diversity framework. This will be demonstrated in chapters five and six.

4.1 Clock time and capitalism

It is no coincidence that, as the free market expands, clocks become mainstream.⁸⁵ Enlightenment thinking places humankind above nature and on a par with God the creator. The world is to be a productive machine that can be controlled by science and brings modernization and wealth in unprecedented forms. Exact science aids the development of machines that are more productive and create new markets. It also means a revival of binary oppositions, the soul as separate from the body, virtue as the opposite of vice. Homo universalis, in vogue since the Renaissance period, gets replaced by rational economic man, with emotional woman as its counterpart. Time scarcity finds its origin in the same period. From the 18th century onwards, a predominantly cyclical, nature-oriented time concept makes way for a linear time concept, for the line without end.⁸⁶ Time became money, and with time, one could earn money. Once reduced to a quantifiable entity of money, time could be used, saved and won.⁸⁷

Fordism and Taylorism

There was one capitalist in particular who knew how to quantify performance and maximize production: Henry T. Ford. Conveyor belt assembly lines delivered higher work output, lower production time and lower production costs. In fact, Ford started his career by repairing watches for neighbors and friends.^{88&89} Next to the supply side of economics, Ford understood that if he paid his workers more and gave them time off work they could afford to drive a Ford T to work, increasing car sales.⁹⁰

While Ford was the standard bearer for economic efficiency, Frederick Taylor was the man behind scientific management, a new approach in the policy domain. Government had to be run like a business and provide efficient and predictable results. Decision-making came down to performing unbiased cost-benefit analysis

⁸⁵ H. Hooijmaaijers, 'Voor de Vorm, interview with Hans Hooijmaaijers head of collection of Rijksmuseum Boerhaave' [presented by Christien Meindertsma], NTR, 02020, <https://www.ntr.nl/Voor-de-vorm/311>

⁸⁶ Nowotny, H., *Eigenzeit: Entstehung und Strukturierung eines Zeitgefühls*, Frankfurt am Main: Suhrkamp 01989

⁸⁷ Ibid.

⁸⁸ Ford was so preoccupied with time that he built a watch with two dials that told two times: the local village time, and the new railroad time. Ford describes it elicited much curiosity from the locals (Bluedorn, 02002).

⁸⁹ A.C. Bluedorn, *The Human Organization of Time, Temporal Realities and Experience*, Stanford University Press, 02002

⁹⁰ Ibid.

and maximizing efficiency. Taylor promoted mass production and giving employees time related bonuses.⁹¹

Fordism and Taylorism were adopted by private and public actors alike. Accessibility to consumer goods and fast production cycles were seen as a success and became the standard benchmark and operation procedure in economics and politics.⁹²




The charm of clocks

The appeal of clocks lies not only in their visual beauty or the way the mechanism moves independently, it is also the sound. The ticking is slightly slower than the beating of the human heart and might therefore cause a reassuring sensation. Though obviously non-organic, clockmakers have tried to make the clock more human by putting a fake cuckoo bird inside, reminding us that birdsong was the original way of telling the time of day (Siemens-Brega, 02020). The hours are called after the Horae, Greek goddesses of fertility, associated with positive events such as the harvest and abundance. The clock is thus linked to sacral significance and fertility symbols grounded in the deeper consciousness.⁹³ Comparisons between capitalism and religion show striking similarities. The deity is the market, economic growth the gospel and reading of stock prices frctions as prayer ceremony.⁹⁴

Imagery

Regular time was originally depicted by Chronos, the bearded and shriveled man perpetually waiting with an hourglass or scythe in his hand. Through the years Chronos was replaced by the mechanical round clock. This in turn was replaced by horizontal digits on alarm clocks and other screens. Today, clock time is embodied by computers and algorithyms of the fast finance industry that calculate digital profits over derived share prices in mili-seconds. Even more important and frequent are the arrow, watch, hourglass, cog, mathematical formula, equation, blade, tower and bell.

Table 1: Summary of clock time characteristics

Type of time	Tool	Verbs	Expressions	Disciplines
(Atomic) clock time, Chronological time, Objective time 	(Atomic) clock, geometry, algebra 	Counting, tallying Calculating, measuring, comparing, destroying, synchronizing, ticking, moving, using, maximizing, unwinding	Chronological, forward, progress, modernity, productivity, utility, time = money, cost benefit analysis, free 	Mathematics, Management, Logistics, Economics Econometrics

⁹¹ M. Bovens, *Openbaar bestuur, beleid, organisatie en politiek*, Wolters Kluwer, Amsterdam 02017

⁹² T. Lijster, *Kijken, proeven denken, essays over kunst kritiek en filosofie*, De Bezige Bij, Amsterdam 02019

⁹³ Round and curved objects are known to attract attention from the human brain (Lima, 02017). I would even go farther to suggest that the clock's round features, with pointers in the middle, activates neural networks that associate it with the sight of female breasts from infancy. It could just be coincidence or Freudian thought.

⁹⁴ H. Cox *The Market as God*, Harvard University Press, Cambridge, 02016



Still from *Koyaanisqatsi* (01982) by Godfrey Reggio. The title of the movie is a translation of a Hopi-indian expression meaning 'Life Out Of Balance'. Accompanied by the puzzling minimalistic compositions by Philip Glass, the movie is a dazzling critique that makes use of timelapses, slowmotion and male choirs. 38 years after its release it has lost no significance.



Any place where a tower clock rises prominent over the city can be defined as a center of capitalist enterprise. Originally inhabited by scouts to sound the alarm in case of city fire or approaching enemies, their later use was to signal market hours or ceremony. Virginia Woolf's novel 'Mrs Dalloway' features the chimes of the Big Ben as a disturbing force for the two lead characters, who cannot seem to get any rest due to the endless ticking of the clock.

4.2 Temporal orders and centralization of authority

Temporal orders belong to the field of sociology and political science. They comprise the social relations, power structures and the discourse surrounding arrangements of time. Temporal orders are established by ensembles and connecting strategies; groups of people aligning their interests through language, technology or law that keep a specific time agreement in place.⁹⁵ An example is the introduction of time zones for railroad schedules or Daylight Saving Time (DST). A temporal order expires when participants choose to no longer follow the agreement. An example is French revolutionaries trying to replace the 60 minute hour with a 100 minute hour.⁹⁶ Or the island of Sommarøy in Norway abandoning the concept of clock time because their geographical location far north makes for unusual long and short days.⁹⁷

Ensembles

Sociologist Peter Peters compares temporal orders to the logic of fugues; multitonal musical compositions. A fugue can be played at different tempo's and speed up or slow down depending on the lead singer's tempo. Its structure consists of a question and answer scheme with multiple singers and instruments tuning in throughout the performance.⁹⁸ It is therefore less strict than clock time and stresses the importance of participants. The musical notes and instructions from the director ensure that the musical piece is understandable to everyone and that it can be repeated. Each ensemble of singers being unique with their voices and interrelations means every performance is different and presents new problems to be solved.⁹⁹

Connecting strategies

Peters describes how the smooth transfer of train passengers from one line to another required a redesign of train schedules.¹⁰⁰ The local times of all villages had to be replaced with a standardized time. A power transfer from locomotive drivers to a control center that would now monitor and adjust the speed on board. The spread of understandable and updated time tables. Each passengers showing up at the correct time interval, creating expectations and eliminating the practice of improvised transport. Prioritizing some trains over others not to cause delays further down the trajectory and so on and so forth.¹⁰¹

⁹⁵ P. Peters, *De Haast van Albertine*, De Balie, Amsterdam, 02003

⁹⁶ A.C. Bluedorn, *The Human Organization of Time, Temporal Realities and Experience*, Stanford University Press, 02002

⁹⁷ The island does not get rid of clock time in reality, the action was devised as a publicity stunt by the local tourism office rather than being official policy. H. Coffey, Norwegian island wants to erase the concept of time, *The Independent* 18-06-02019 <https://www.independent.co.uk/travel/news-and-advice/norway-sommaroy-island-ban-time-free-zone-clock-summer-sunset-rise-a8963831.html>

⁹⁸ P. Peters, *De Haast van Albertine*, De Balie, Amsterdam, 02003

⁹⁹ Ibid.

¹⁰⁰ Ibid.

¹⁰¹ Ibid.

Deconstructing worlds and logics

Temporal orders require continuous maintenance, negotiation and legitimization.¹⁰² This is done through logic; constellations of socially constructed words, images, beliefs and value systems that appear so convincing that they are not questioned by participants.¹⁰³ A word espoused by car logic is pedestrian. Used in a derogative manner to indicate peasants or infantry in ancient Rome, opposed to noble men and cavalry seated on horseback. Car logic building on the tradition of horse riding explains why pedestrians have a submissive position in traffic.¹⁰⁴ Peters explains how logics make use of myths and idealtype images, for example the car providing freedom and endless frontiers.¹⁰⁵ Fringe orders may hijack terms to enforce their own constellation or choose their own words.

Peters argues that one logic is not better than another. The car is no better than the airplane, the train, the boat, the bicycle or walking. It simply serves other needs and represents a different world of ideas. It is up to society to make informed choices between these worlds that exist simultaneously and in interaction with each other. Applying this idea to time means that clock time is not better than temporal orders, situational time, eternity, duration or circadian rhythm. Deadlines help to achieve goals, time limits help to make sport games attractive to watch.¹⁰⁶ Shorter armed conflict puts a lower strain on society than elongated wars.¹⁰⁷ In other domains clock time might not be the most suitable ordering principle.

Polar opposites

Human beings are conditioned to think in opposites because our eyes orient themselves towards the horizon. Gravity pulling us down means we refer to the world in left and right, up and down, forward and backward.¹⁰⁸ In the mobility debate these opposites take the shape of subjective journeys and objective travel movements, in camps of slower experiences or faster modalities. The same can be said for time. To circumvent this Peters introduces the term *passage* which allows us to broaden the policy debate, making the question not about speed but acknowledging a wide range of legitimate purposes to go from one place to another.¹⁰⁹ There is not a preferential journey or a movement, there is a set of actors with unique goals working together to provide unhindered passage any time of the day.¹¹⁰

¹⁰² Ibid.

¹⁰³ Ibid.

¹⁰⁴ T. Lijster, *Kijken, proeven denken, essays over kunst kritiek en filosofie*, De Bezige Bij, Amsterdam 02019

¹⁰⁵ P. Peters, *De Haast van Albertine, De Balie*, Amsterdam, 02003

¹⁰⁶ Note how the attention span of the audience decides if a sport is entertaining or not. Sports without time limit and commercial success are cricket, tennis and baseball, the Olympic Games are elaborated with extreme sports with faster run times to attract viewership, a manifestation of clock time prevailing over athleticism.

¹⁰⁷ The time span of wars has decreased in the 20th century (SOURCE). The Eighty Years War between the Netherlands and Spain or the Hundred Year war in Germany seem unthinkable under the current time regime.

¹⁰⁸ K. Raworth, 'Doughnut Economics: Seven Ways to Think Like a 21st Century Economist', White River Junction, VT, Chelsea Green Publishing, 02017.

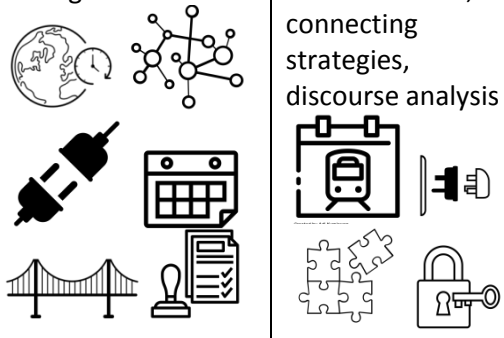
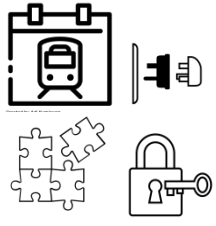

¹⁰⁹ P. Peters, *De Haast van Albertine, De Balie*, Amsterdam, 02003

¹¹⁰ Ibid.

Imagery

Temporal orders are visualized through networks, bridges, gates, puzzles, knots, stamps, forms, keys, locks, chains, links, time tables, regions, zones and calendars.

Table 2: A summary of temporal order characteristics

Type of time	Tool	Verbs	Expressions	Disciplines
Temporal orders, Passage 	Social deconstruction, connecting strategies, discourse analysis 	Organizing, reading, repairing, negotiating, legitimizing, orchestrating smoothening, standardizing, harmonizing, adapting, transforming, risk-minimizing	Regimes, dominant practices, itinerary, time table, schedule, agenda, calendar, workflow, grids, agreements, logic, power relations, expanding networks, control = dependency, ensembles, currency, concert, infrastructure	Sociology, Political science, Language studies Organizational science, System engineering 



Temporal orders know intermissions that temporarily suspend time. Bridges are the most iconic places that grant passage to the other side. The eternity time concept is also associated with sacred gates and bridges to other worlds. Therefore the term infrastructure applies to all those connections that enable smooth transition between physical places, though with the arrival of data signals and storage in the cloud, 'physical' presence is a ambiguous term.

Photo taken at Overtoomsesluis, Amsterdam

4.3 Situational time and Zeitgeist

Situational time belongs to the field of anthropology and history. It studies how individual time perception is affected by cultural contexts, temporal eras and geographical location. The Annales school distinguishes three modes of time, *le temps événementiel*, *le temps conjuncturel* and *le temps structurel*. The first encompasses political events, also called *courte durée*, the second encompasses shifts in societal currents, also called *moyenne durée*, the third encompasses geographic and climatological processes, also called *Longue Durée*.^{111&112}

A historical anecdote from World War I illustrates how the first and second types of time collide. On the 1st of August 01914, Kaiser Wilhelm II advises against a two-front war with Russia on the East and France, Belgium and Great Britain on the West, stating things should be done 'one thing at a time'. General von Moltke rejects the advise with the words "once settled, it [the plan] cannot be altered." Since both positions were deeply engrained values of German culture. History could have gone either way, Von Moltke got his, making clear that all paths in histories boil down to choices made by individuals based on larger cultural views.¹¹³

Both men were influenced by the Zeitgeist, a mode of thinking characteristic for a certain period, irrespective of geographical borders. The German nations had just coalesced around one emperor after centuries of regional strife and conflict. The idea of nations came into fashion, the times were exploratory. The Kaiser was ten years older, perhaps more inclined to be conservative and on the safe side while von Moltke may have experienced some *Sturm und Drang* to prove himself to his peers.

Dogma's and imposed rules

Time is intricately linked to the establishment of kingdoms and religions. Goudsblom notes that the first known chronologies are the genealogy of Sumerian kings. He suggests that blood lineage served as a way to legitimize the rank of aristocracy, gradually replacing rotating leadership.¹¹⁴ New kings and queens often introduced new rules to establish their reign, including time keeping customs. Bluedorn analyses how early Christianity chose for Sunday as a day of worship for practical reasons: 1) religions with resting days were popular and 2) worshipping one day after the Shabath lowered the threshold to convert. Six hundred years later, the founders of Islam followed the same logic and adopted Friday as the day of worship.¹¹⁵

¹¹¹ This concept of *durée* is distinct from that of Henri Bergsons 'duration' which will be explained in 4.6.

¹¹² Humans are supposed to experience only short term and middle term history, but as the pace of global warming picks up, we are experiencing what would otherwise have been called long term history.

¹¹³ A.C. Bluedorn, *The Human Organization of Time, Temporal Realities and Experience*, Stanford University Press, 02002

¹¹⁴ J.Goudsblom, *Het Regime van de Tijd*, Meulenhoff, Amsterdam, 01997

¹¹⁵ A.C. Bluedorn, *The Human Organization of Time, Temporal Realities and Experience*, Stanford University Press, 02002

Active waiting

In 'The Shadow of the Sun' Ryszard Kapuscinski documents how the African continent knows a different attitude towards time. There is not one word for waiting, there are many, but once an opportunity arrives, people turn into active mode (Kapuscinski, 01998). The heat at noon is so suffocating that everybody lies inert in their hut, permanent jobs in the city don't exist, people partake in several activities and share workloads as well as benefits with their families.¹¹⁶ Jasmijn Schrofer, a filmmaker who filmed the transition from darkness to artificial lighting notes how she did not receive straight answers to her question when certain events would take place. If there was an answer it would be 'later' and only if people were in the mood. Just as taxi vans don't leave at a given moment of the day but when the capacity is fully loaded, making sensible use of the means at hand.¹¹⁷ Further on in the interview she notes that the arrival of artificial light makes possible industry and professions that were previously intolerable in the heat, for instance car mechanics.

Remnants of the past in behavior

Performance artist and time researcher Foivi Pseudou describes how stress is engrained in the Greek body. From 1897 to 1974, a period of eighty years, the Greek fought several wars. This leads to a cultural attitude of evading danger, exemplified by 'the Greek mother', a stereotype character that is always in agony about what is going to happen. Life can best be described as living from day to day, while people from cultures in the north like Germany and the Netherlands don't exhibit the same stress and constant worry.¹¹⁸

Max Weber's standard work 'The Protestant Ethic and the Spirit of Capitalism' pays attention to this north-south divide, stating that financial independence and ascetic lifestyles originate in a Calvinistic reading of the Bible.¹¹⁹ Contemporary research adds that milder climates lead to more elaborate community life outside while colder environments tend to promote individualistic values.¹²⁰

Class and other time determinants

Major determinants for individual time experience are socioeconomic status and physical and mental health. People with accumulated capital have longer lifespans and experience less stress than those with insecure sources of income. Living from paycheck to paycheck is different from living an opportunity rich life. Materialistic life can lead to the pursuit of careers and optimized happiness, meaning rich people may look forward all the time rather than live in the now.¹²¹

¹¹⁶Ibid.

¹¹⁷J. Schrofer "Documentary filmmaker, director of 'The End of Darkness'", [interview] 30 June 02020

¹¹⁸F. Pseudou "Performance artist and time researcher" [interview], 10 June 02020

¹¹⁹M. Weber, *The Protestant Ethic and the Spirit of Capitalism*, Routledge, New York, 1930

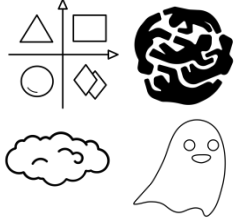


¹²⁰R. Inglehart, Cultural Map 02020 <http://www.worldvaluessurvey.org/WVSCContents.jsp?CMSID=findings>

¹²¹J. Boyd and P. Zimbardo, *The Time Paradox: The New Psychology of Time That Will Change Your Life*, Atria Books, New York City, 02008

Imagery

Situational time is depicted through local religious or superstitious symbols, cultural and generational concepts, tempo indications, value maps and flags.

Table 3: A summary of situational time characteristics

Type of time	Tool	Verbs	Expressions	Disciplines
Situational time, Familiar time, Circumstantial time, Cultural time 	Comparative value research 	Sharing, rushing, waiting, reading, interpreting, 	Zeitgeist, ideas, generations, era's, dynasties, periods, innovation, renewal, attention versus distraction, boredom, Zen, Chi, Dharma, dogma, rules	Archeology, History, Anthropology, Climate studies, Geophysics, Geneology



Still from Cloud Atlas (02012) by the Wachowski siblings. The movie shows the entwinement of different historical epochs through actors playing similar characters in multiple time periods. The characters end up showing very different behavior due to circumstances. Above we see four roles played by Tom Hanks and Halle Barry. After seeing the movie one is left with the feeling that everything is connected yet also an extremely random coincidence.



Still from *We Come as Friends* (2014). Director Hubert Sauper demonstrates the legacy of colonialism and renewed resource exploitation by Chinese and American enterprises on the African continent. Sauper visits several countries in his makeshift aircraft and provides a surreal aerial perspective on the straight cut borders that divide regional communities and landscapes. One scene shows American couples who fund evangelical politicians who force Christianity and clothing onto rural communities. The homogenization processes cause grave inequality, disruption of local customs and loss of agency for indigenous populations.

4.4 Circadian rhythm and neuro-transmitters

Circadian rhythm is studied by chrono-biology and neuroscience.¹²² It is comprised of pulses, rates and cycles that occur in nature such as sunrise and sunset, earth's orbit, body processes and the seasons. Every living organism follows several cycles, the primary one being that of daylight which approximates 24 hours. Eyes register the amount of light coming in, regulating the production of melatonin; a neurotransmitter that induces sleep.¹²³ People who are trapped in dark environments adjust the internal of days and perceive time as moving slower.¹²⁴ People who are exposed to artificial light till late in the evening sleep less and have a harder time waking up.¹²⁵ Time is obviously different throughout the year depending on the latitude and season, humans classically being less active in winter and more active in summer.

Different chronotypes in different life phases

As humans age, their chronotype changes. During infancy it is close to 24 hours, so called early chronotypes. During early adulthood it extends to almost 25 hours, to return back to 24 hours around 35 years of age. Late chronotypes have no trouble staying up late, they do have much more trouble waking up.¹²⁶

As humans grow more old, their experience of time is thought to accelerate for two reasons: 1) routine behavior is so engrained that it requires less brain activity while motoric and cognitive functions slow down.¹²⁷ 2) young people have lived a smaller portion of their life and most years still ahead, meaning hours, days or years can feel like endless stretches without an end. Older people have most events behind them and fewer years ahead, meaning an important life event can feel like yesterday while it was twenty years ago and there is the realization that life is finite. We can thus speak of generational time differences: children are bustling with energy, seeking out impulse rich environments to learn fast, while older people seek quiet places. Human senses align with the body tempo in various life stages.

Sleep at night

Humans spend about one third of their time asleep, also referred to as dream time. The body and mind mostly rest during this period, waking up as if no time had passed by, though the subconscious can experience vivid stretches of time in alternate realities.¹²⁸ When we wake up we only remember fragments of lives we had.¹²⁹

¹²² An often used term is biological clock but I posit this as inaccurate because the biological organisms do not equate to machines. The fact that the term "like clockwork," is used to describe any well-ordered, well-coordinated process shows how engrained the clock is in modern culture (Boorstin, 01983). It is the other way around; the clock is modeled after our time perception. Alternative terms are body tempo or bio-rhythm.

¹²³ J. Meijer, "Professor neuropsychology at LUMC" [interview] 11 August 2020

¹²⁴ J. Schrofer "Documentary filmmaker, director of 'The End of Darkness'", [interview] 30 June 02020

¹²⁵ J. Meijer, "Professor neuropsychology at LUMC" [interview] 11 August 2020

¹²⁶ Ibid.

¹²⁷ Adler, R., "Look how time flies . . .". New Scientist, 01999

<https://www.newscientist.com/article/mg16422180-900-look-how-time-flies/>

¹²⁸ M. Walker, *Why We Sleep: Unlocking the Power of Sleep and Dreams*, Scribner, New York, 02017

Human used to have two sessions of sleep each night, the first and the second sleep. This phenomenon can still be observed in some tribes or when camping in nature.¹³⁰ The in between time was classically devoted to creative activities such as storytelling, folding the laundry, writing in a journal or sexual activity. This changed with the arrival of artificial light in the 19th century. It became fashionable for the elite to go to bed late and sleep uninterrupted for eight hours and then spread to the rest of the world.¹³¹

Modern day illumination drastically alters our circadian rhythm, so much so that it causes cancer in professions that suffer from alternative rhythms such as nursing, security and airline personnel.¹³² Only 70 years ago light bulbs were so costly and vulnerable that a household had just one. With the proliferation of cheap light sources, light emitted from earth's surface stays trapped and causes *sky glow* which in turn dissipates the phenomenon of twilight, the in between time. In some tribes without artificial light people sleep longer and are more active between the first and the second sleep.¹³³

Other body stimuli

Alcohol, caffeine, theine, adrenalin, synthetic drugs and mushrooms have profound effects on time experience. They can cause memory loss, temporary focus and higher performance, time dilution or time expansion, depending on the person taking them. Each body is unique in how it responds to these substances, some actively release body own neuro-transmitters, others resist the drug's effects. Severe illness can lead to delirium or lucid dreaming in which time passes differently. People who had out-of-body experiences report time going slower. As they hover over the situation, time seems trapped in an eternal moment in which the person is just a passenger. Adrenaline released during a swim in a freezing mountain creek causes perceived delay in time, while minutes can pass very slowly in hot and humid air conditions. Daylight therapy can lead to a reset of the circadian rhythm if not enough melatonin is produced by the body itself.

¹²⁹ Though most people dream, not everybody experiences or remembers them vividly

¹³⁰ J. Meijer, "Professor neuropsychology at LUMC" [interview] 11 August 2020

¹³¹ A.R. Ekirch, *At Day's Close: Night in Times Past*, W. W. Norton & Company, London, 2006

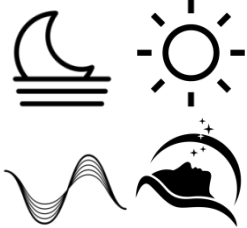




¹³² M. Cole et al. PER2 regulation of mammary gland development, *Development*, 2018; 145 (6): dev157966
DOI: 10.1242/dev.157966

¹³³ J. Meijer, "Professor neuropsychology at LUMC" [interview] 11 August 2020

Imagery

Circadian rhythm is depicted with sunrise and sundown, the rooster and birdsong. More recently it is associated with light experiments, MRI scans and genetics. As darkness disappears in more and more places, the life of nomadic people and shepherds is romanticized as one of the few lifestyles still connected to nature. Other symbols include that of generations, DNA, psychedelics and daylight simulation.

Table 4: A summary of Circadian Rhythm characteristics

Type of time	Tool	Verbs	Expressions	Disciplines
Circadian rhythm, Body tempo, natural time, biological clock 	Light stimuli, eyes, brain activity scans 	Sensing, seeing, hearing, sleeping, stimulating 	Tempo, hormones, neuro-transmitters, seasons, cycles, waves, tides, beat, contrast, chronotypes 	Chrono-biology, Neuro-science, Bio-medical science, Agriculture, Horticulture 



Still from *Gubben i stugan* (01996). In the 2012 sequel *Lakttagelser i tiden* (Impressions of Time) director Nina Hedenius weaves a poetic web of images in which rapid citylife and the boredom of children in schools intersected with the life of a retired forest guard. His routine is dictated by the rhythm of the seasons and his own body being tired or energetic. Sveriges Television (SVT)



Still from *Aurora Metropolis* (02002). Director Jeroen van Disch captures several forms of light pollution in the Netherlands, the most light polluted country in the world together with Puerto Rico and Belgium. There is regulation on the minimum amount of light in office spaces but no regulation on overproduction of light that causes skyglow¹³⁴. Light pollution has an effect on obesity, cardiac disease and depression. The size of the effect is unknown¹³⁵. Belgium has the densest lit road network of the world, but also the highest number of traffic deaths of Europe. In Belgium, 14% of traffic deaths is caused by a frontal collision with a lightpole. <https://vimeo.com/440550450> Sandberg Instituut



Artavazd's Peleshyan's *Vremena goda* (translation, *Seasons of the Year*, 01972) depicts the life in a rural Armenian village during a full year. The film exquisitely mimics nature's rhythm through montage and music. <https://parajanov.com/seasons/>

¹³⁴M. Bleijenberg "Communication advisor Natuur en Milieufederatie, project leader Nacht van de Nacht, and DJ", [interview], 15 July 02020

¹³⁵J. Meijer, "Professor neuropsychology at LUMC" [interview] 11 August 2020



Kyanq (Life) by Artavazd Peleshian, one of the most beautiful short documentaries made in 01992. The film captures the director's wife as she is in labor. The heartbeat of the newborn and the swelling contractions are accompanied by two male and two female voices harmoniously singing Giuseppe Verdi's 'Messa da Requiem: Hostias'. It shows how only through pain and conflict can happiness be born and how life has its own rhythm, it doesn't get dictated by the clock but is a force of its own.



Still from Feel the Night (2015). Director Thom Verheul captures architect Nynke Rixt-Jukema's mission to value darkness as a valuable asset of the landscape. A light on the NS station of Mantgum gets turned off because trains don't pass the station at night anyway. (Olgers & Verheul films)



The performance Mechanical Ecstasy by Club Guy & Ronie and Slagwerk Den Haag is a perfect example of circadian rhythm. It is customary for many cultures to dance during full moon or in cities in a dark night club. A universal phenomenon where our bodies express themselves freely to rhythmic melodies, in ways that would not always be acceptable during the daytime. Becoming one with the surrounding, sometimes under the influence of drugs such as alcohol, psychedelics or chemicals. Digital music is different from acoustic music in that it can be repeated like cinematographic time, while analogue sounds still require physical processes and sounds. This performance of digital music with live drums is a fusion of both.

4.5 Eternity and origin stories

Eternal time is studied by theology, astro-physics and esoterics. It is the sensation we have when looking up to the stars and the Milkyway, mesmerized by its size and vastness that we will never comprehend. It is also those spiritual moments in which we feel connected to the universe or a higher purpose. Essentially, time is about origin. Humanity wonders where it comes from, if time always existed, and if so, where was the beginning and where was the end? What happened before the Big Bang or Creation? Many human societies grapple with those existential questions, coming up with answers through storytelling, science or faith.

Origin stories

Though vastly different in each country, origin stories show striking similarities, almost always featuring a snake as a symbol of fertility. Reincarnation and spirits of ancestors influencing life on earth is another characteristic. Van der Meer recounts how she visits a tribe in Vietnam that recites 69 generations of ancestry by heart, from which stems the tradition of passing down family names.¹³⁶ The presence of Venus figurines, female statues with round breasts and broad hips, across multiple continent suggests the ancient gods were predominantly female and concerned with fertility and providing abundance. Holy places are often high places in the landscape that allude to male or female curves, or alternatively, caves or water sources that allude to the womb of the mother.¹³⁷ The 28 day fertility cycle of women dictated the rhythm at which the tribe was active.¹³⁸

Spiraling epochs

Van der Meer describes how ancient cultures speak of societies spiraling back and forth from iron, bronze, silver and golden times. The lack of weapons found in graves of ancient civilizations, and precisely built megalithic structures in less than decades demonstrate a concern with the spiritual afterlife more than material wealth. Society is set to enter golden times when it is called back to the source. These are cycles that take thousands of years, the iron times of today are soon set to change as the children that are born in the age of Aquarius have a heightened awareness and concern with nature.¹³⁹

Sacral time

Sacral time can be described as the moments in which a higher force is experienced through rites of passage, rituals of worship, marital ceremonies or lunar events. Rites often involve light in the form of fire, music, dance and sacrifice.¹⁴⁰ The material reality is transcended and extraordinary senses are activated.

¹³⁶ A. van der Meer, *Van Venus tot Madonna*, PanSophia-Press, Den Haag, 02006

¹³⁷ Ibid.

¹³⁸ A. van der Meer, "Herstorian, esoterian and author" [interview] 23 July 02020

¹³⁹ Ibid.

¹⁴⁰ A. van der Meer, *Van Venus tot Madonna*, PanSophia-Press, Den Haag, 02006

Sacral time is also characterized by stillness, reciting prayers in a meditative sense. Hermsen describes how sacral moments disappeared as secularization and utility thinking came up.¹⁴¹

Hermsen argues for the construction of new temples and new rituals that transcend the ordinary experience of life. A transition away from institutions that create constant time pressure. She mentions how in Etrusk civilization, labyrinths served as places for ritual dances and offering but also as methods of knowledge production by simply walking and observing nature. Moments of communal reflection and acknowledging we are not able to know everything, *a-gnosis*, deserve more space in society.¹⁴²

Passing from one world to another

In Turkish culture, the eye is hung at the threshold of the door to keep bad spirits away. In Surinamese culture, after midnight the house should be entered with the back first, so evil spirits do not find their way inside. Many cultures feature rituals as thresholds stand for other worlds.¹⁴³ Interiors are holy and should be kept clean. Physically through cleaning, ritually by burning incense and through prayer. Unwanted energy can be kept outside by being conscious of entering and leaving.

Imagery

Aion is the Greek god used to indicate lifetimes, epochs and era's. The Roman name was Aeternitas. Aion is the original creator, androgyn in nature, who mated with the sky and produced an egg, from which the cosmos and several other gods were born. Her children would take the shape of several natural phenomena such as the oceans, the earth and the wind.¹⁴⁴ Aion is often depicted standing in an oval, connecting past civilizations and afterlives in one perpetual line. Chronos would divide these up in past, present and future.¹⁴⁵

Mother goddesses are often portrayed three at a time, signifying the girl, the mother and the grandmother. Statues often feature symbols of abundance such as apples, wheat, animals and the horn. They are seated beneath a ceiling of stars and planets, indicating knowledge of the universe and representing the birthing position. Other symbols include snakes, trees, wheels, sigmas, ovals, altars, shrines, wells, fountains, chalices, pyramids, the unification of male and female and flowers.

¹⁴¹ J. Hermsen, *Kairos, een nieuwe bevlogenheid*, Arbeiderspers, Amsterdam/Antwerpen/Utrecht, 02014


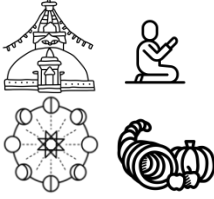



¹⁴² Ibid.

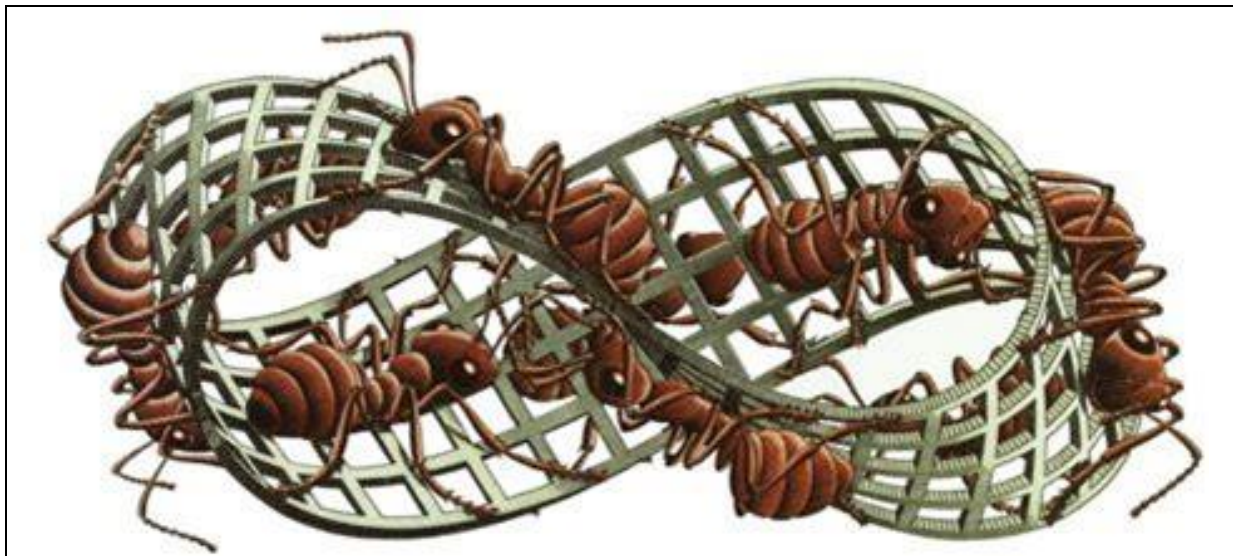
¹⁴³ Christians entering a catholic/orthodox church perform a blessing that originates in the same phenomenon.

¹⁴⁴ A. van der Meer, "Herstorian, esoterian and author" [interview] 23 July 02020

¹⁴⁵ J. Hermsen "Philosopher, novelist and publicist", [interview], 02 July 02020

Table 5: A summary of Eternity characteristics

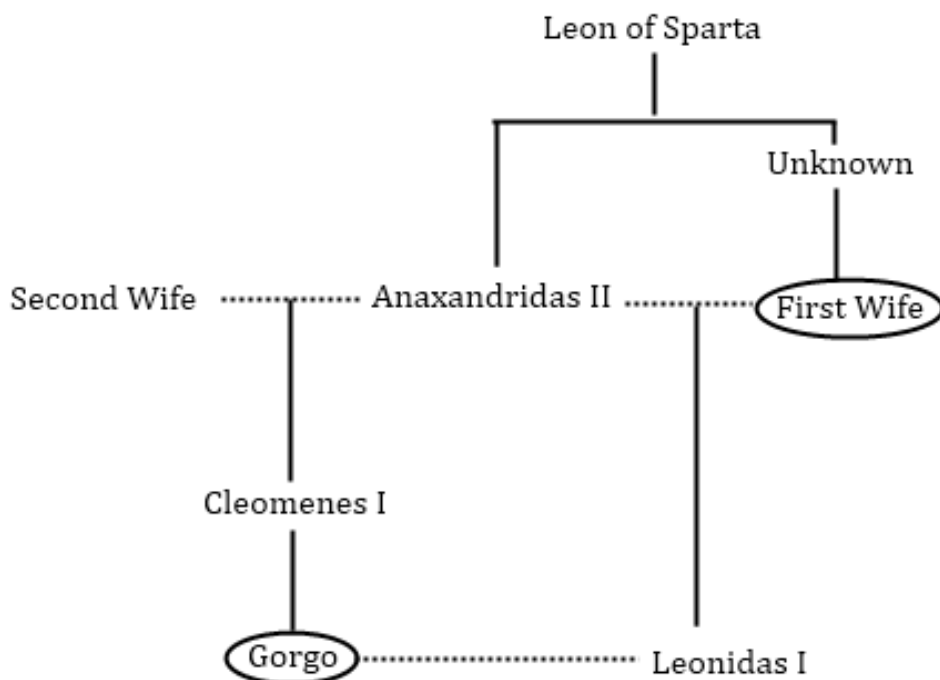
Type of time	Tool	Verbs	Expressions	Disciplines
Eternal time, Sacral time, Cosmic time 	Megalithic structures, storytelling, deeper consciousness, intuition, prayer, meditation 	Observing, creating, giving birth, celebrating, ceasing, being born, shaping, transforming, spiraling 	Time immemorial, Aion/Eon, fate, abundance, collective subconscious, the other side, harmony, holy days, visions, longevity, dreams, as above so below, inverse, synchronicity 	Astro-physics Astro-archeology, Esoterics, Herstory, Mysticism, Sacred geometry, Theology, Quantum-physics 



M.C. Escher's Möbius Band. The sigma symbol stands for eternity while the single-sided surface demonstrates that multiple planes exist next to each other. The ants can walk forever without running into each other. Escher felt like a failure as a mathematician, unable to reach the levels of proper geniuses such as Henri Bergsson. As an artist however, he excelled in capturing the magic and deceptive nature of numbers. Where 2D planes allow only certain interpretations, theoretical mathematics provides infinite dimensions and configurations of objects.



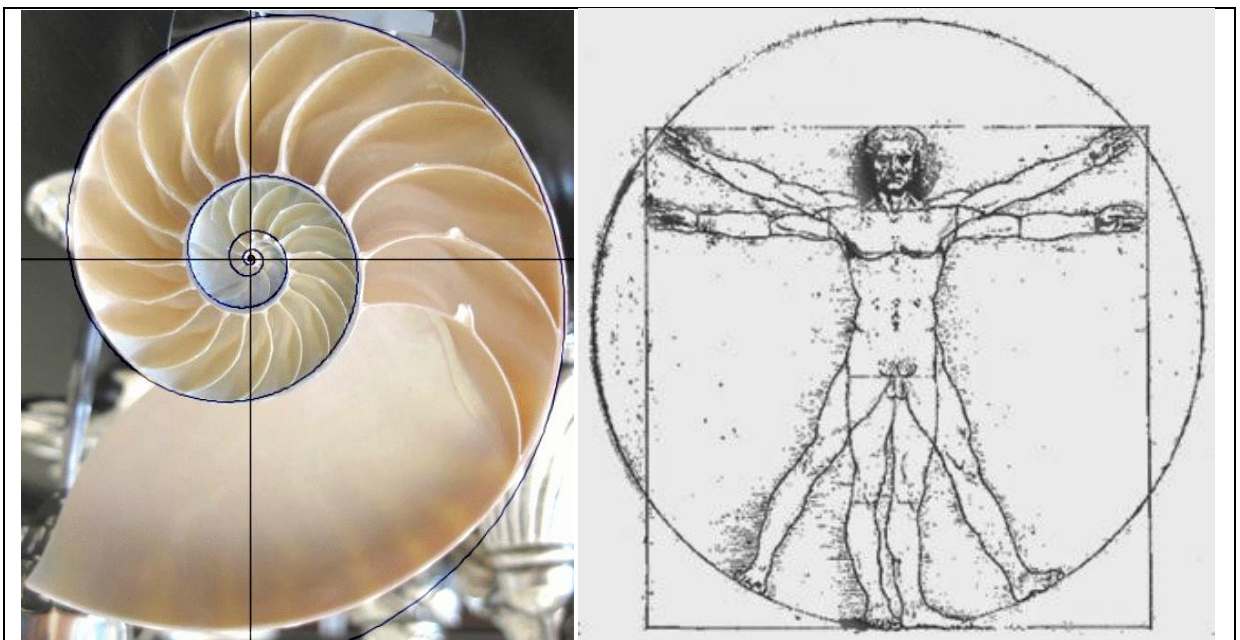
One of the riddles from old Greek times is the Ship of Theseus. If it leaves the shore with a male and female crew, manages to sail around for a hundred years and while every part has been replaced, crew as well as boat, is the ship that arrives in the port the same ship?



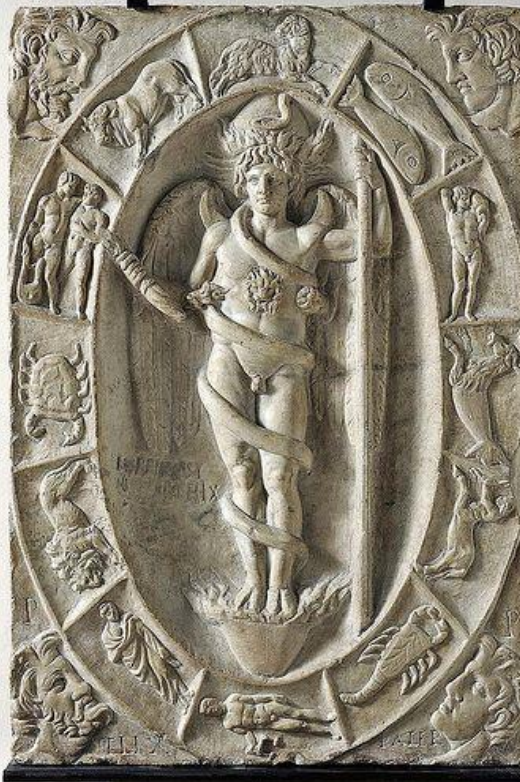
Similar riddles concern generations. Imagine your grandmother delivers a baby that is younger than you. Do you belong to the same generation or is it the generation of your uncle? The answer is both are true, depending on your point of view.



Casa Batlló by Antonio Gaudí. A devout Catholic and adorant of nature, Gaudí tried to demonstrate his love for God and the landscape with designs that made use of sacred geometry. His greatest work, the Sagrada Familia, is a never ending work of construction that started in 01882. Cathedrals are exemplary eternal buildings.



Sacred Geometry tries to find reasons for this ordering principle that recurs in nature and attributes certain qualities to mathematical phenomena such as Fibonacci's sequence and the golden ratio. The Nautilus shell exhibits continuous growth in an exact manner. Da Vinci's Vitruvian man draws on perfect proportions as describes by Vitruvius' in his book 'De Architectura' (on architecture).



A big mosaic showing Aion in an egg shaped oval. In other instances Aion is depicted with crafting tools in its hands, alluding it creator status, or holding keys in its hands, signifying access to divine knowledge. Encircling snakes symbolize eternal life and fertility.



Dome-shaped structures such as this Buddhist stupa in Sanchi, India, or the Pantheon in Rome, are considered holy. Round shaped objects signal holistic thought.



At eternity's gate (02015) by Julian Schnabel tells the story of Vincent van Gogh's divine quest to portray the wonder of nature. The son of a preacherman, van Gogh was a devout Christian and said that through painting he served God. 'Maybe God made me a painter for people who aren't born yet.' William Dafoe's character says in the movie. Genuinely expressed by van Gogh in one of his letters: *"For wheat is wheat, even if it looks like grass at first to townsfolk — and the other way round too. In any event — whether people like or don't like what I do and how I do it, for my part I know no other way but to wrestle with nature until such time as she reveals her secret."*



The three fates; Clotho, Lachesis and Atropos, oil on canvas, Paul Thumann (1834-1908). Lachesis represents the mother holding the harvest and weaving the thread, she is also called Nona, an allusion to the ninth month of pregnancy. Clotho represents the girl, innocent but already knowing, she measures and draws the lot with a measuring stick, also called Decima. Atropos represents the grandmother, cutting the thread and deciding the manner of death. She resides in the underworld, where souls go and wait like seedlings to spring to life. Wikimedia commons

4.6 Duration and intuition / inspiration

Time as duration is a phenomenon related to philosophy, psychology, sports and the arts. It is all those moments in which people seem to be sunk in time, in flow, drawn into an object or activity that makes them forget time. It can be a sensual experience, a demanding skill or a moment of heightened awareness during which time seems frozen. Its central concept is soul and *being*, captured in the Latin words inspiration, 'in spiritus', and enthusiasm, meaning the spirit, or God, comes in you.¹⁴⁶ It is those experiences that seem to capture life's wonder in a moment.

Bergson and Proust

The most important authors on subjective time are Henri Bergson and Marcel Proust.¹⁴⁷ Bergson describes time as snowball, gaining mass and quality as it rolls down a mountain and that is never the same, like a constantly renewing river or a swelling musical note that carry elements from the past. Opposed to cinematographic time which is constant and cut into even pieces, duration is whole and can take different forms and shapes. Bergson underlines its quality with the word 'élan vital', the vital impetus, or extraordinary life force that makes us human.¹⁴⁸ To feel this force it is necessary to take a step back, follow one's intuition and let things go their way. While scientific measurement expressed in numbers can provide us with abstractions of the outside world, intuition can guide us to experiencing our interior emotional state of being. Next to having time we are time.¹⁴⁹

Duration according to Bergson is diametrically opposed to and distinct from spatial time (temps). Imagine an experiment where a tablespoon of sugar is stirred and dissolved in a glass of water. The time it takes may be expressed as t for the measurement, which is complete after the observation. But there is also time during the experiment for the observer who is stirring the spoon. Duration can not be measured, only be experienced. It is never the same; the participant may be bored and judge the process as fast or slow depending on the context.¹⁵⁰

Marcel Proust's life work 'In Search of Lost Time' is about memories capturing the essence of life. Scents, tastes and sounds bring the protagonist back to divine moments with a unique quality, such as dipping a Madeleine cake in lime tree tea and the sound of the garden fence as Marcel visits his aunt.¹⁵¹ Proust protested 'the age of Haste', the system living the people rather than people being present in the moment. He believed art is the only thing that can survive time, everything else

¹⁴⁶ J. Hermsen, *Kairos, een nieuwe bevlogenheid*, Arbeiderspers, Amsterdam/Antwerpen/Utrecht, 02014

¹⁴⁷ Friedrich Nietzsche, Rainer Maria Rilke, Virginia Woolf, Ernst Bloch and countless other authors capture the essence of duration as well, this is just a glimpse. I recommend Joke Hermsen's bundles of essays 'Kairos' and 'Stil de Tijd' for a more complete overview, though they are not translated into English (yet).

¹⁴⁸ Ibid.

¹⁴⁹ J. Hermsen "Philosopher, novelist and publicist", [interview], 02 July 02020

¹⁵⁰ T. Lijster, *Kijken, proeven denken, essays over kunst kritiek en filosofie*, De Bezige Bij, Amsterdam 02019

¹⁵¹ J. Hermsen, *Kairos, een nieuwe bevlogenheid*, Arbeiderspers, Amsterdam/Antwerpen/Utrecht, 02014

fades.¹⁵² Several important episodes of the twentieth century serve as backdrop to the story, including the construction of railroads, telegraph lines and the mass killings of World War I. Proust declines to ascribe benefits to technological inventions and speed in particular and instead shows how nothing matters but the interior world of the characters.¹⁵³

The oxymoron

Coming from the latin words oxys, sharp, and moros, blunt, this figure of speech combines two concepts at opposite sides of the spectrum. Life tends to be divided up into categories and boxes, oxymorons liberate us from these divides. It exposes the legion of possibilities and fires up new possibilities and imagination. Examples are *festina lente* (rush slowly), eternal youth or a deafening silence. Philosophy and art are able to surprise us with experimental mixtures, raising questions about what it means to be human, those memories that stick with you for life.¹⁵⁴

Hannah Arendt's concept of natality

The work of Hannah Arendt shows a way out of dualisms. Literally escaping the horrors of Nazi-Europe by fleeing from two prison cells, Arendt refused to see the genocide of WW II as a natural occurrence. While reporting the Nuremberg trial of Adolf Eichmann for the New York Times she coined the term the Banality of Evil, meaning ordinary people can do awful things under particular circumstances.¹⁵⁵ Her conclusion is that hope and natality are the only things that distinguish humans from other animals. Natality is the human capacity to be reborn every single day and imagine new beginnings. Humans are *in statu nascendi*, in the process of being born, which brings endless opportunity to experience life and be free from apathic and dehumanizing machine systems, similar to clocks.

Dasein and other names for duration

In 'Time and Being', Martin Heidegger contrasts *dasein* with *in-der-welt-sein*, the former meaning 'presence' equaling duration, the latter 'existing physically' or mundane day-to-day activities. Heidegger criticizes society ushering in technology without understanding what it *is* to prevent humans from becoming an object to a subject.¹⁵⁶ To be is to experience, to measure is to exist physically.¹⁵⁷

Duration is high concentration combined with deep consciousness, described as flow by psychologist Mihaly Csikszentmihalyi. It requires empty space in the brain as well as semi-active labor.¹⁵⁸ Eudaimonia, translated as happiness or fulfillment is a word

¹⁵² Ibid.

¹⁵³ B.C. Han, *The Scent of Time*, Polity Press, Cambridge, 2018

¹⁵⁴ J. Hermsen, *Kairos, een nieuwe bevlogenheid*, Arbeiderspers, Amsterdam/Antwerpen/Utrecht, 2014

¹⁵⁵ Ibid.

¹⁵⁶ Ibid.

¹⁵⁷ J. Hermsen "Philosopher, novelist and publicist", [interview], 02 July 2020

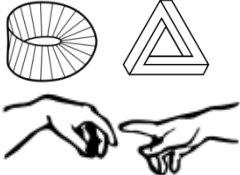



¹⁵⁸ M. te Brömmelstoet., T. Verkade, *Het recht van de snelste*, De Correspondent, Amsterdam, 2020

used in Greece for duration. Monumental moments in which everything comes together. Greatness that you cannot explain.¹⁵⁹

Imagery

Duration is depicted as the god Kairos, young and muscled with winged feet, a bald head except for one curly lock of hair. When Kairos flies by, one should seize the lock for good fortune. If one hesitates, the fingers slip off Kairos’ slippery skull and the occasion will be lost. Kairos balances an empty scale at the tip of a knife, indicating *sensing* of the right moment. Other symbols for duration are water flowing,¹⁶⁰ music notes floating and visual illusions in which multiple realities are true (Möbius Strip).

Table 6: Summary of Duration characteristics

Type of time	Tool	Verbs	Expressions	Disciplines
Duration, Kairotic time, Subjective time 	Storytelling, reflection, meditation, body 	Being, feeling, capturing, seizing, flowing, fleeting, waning, losing track, lost in thought, flowing 	Kairos, eternal moment, divine inspiration, spirit, soul, inter esse, in between, bodies, flow, fulfillment, emptiness 	Psychology, Philosophy, Sports, The Arts (architecture, literature, music, poetry, dance, painting, sculpting, film)

¹⁵⁹ F. Pseudou “Performance artist and time researcher” [interview], 10 June 02020

¹⁶⁰ Heraclitus saying ‘Panta Rhei’ (everything flows) describes the world as being in flux, as one steps into and out of a river, the river has changed, and so has the self. The expression is one of the guiding principles behind morphological objects and design thinking as well as socialdeconstruction.



Fresco by Francesco Salviati in the palazzo Ricci-Sacchetti in Rome (01552-01554). Kairos touches ground briefly while balancing the scale of fate. Since the enlightenment period Kairos and other divine figures have been replaced by abstract and exact scientific symbols of progress. The wings on the wheel of the railways are an occasional remnant. Kairos is also called Occasio, the god of the opportune moment. The spread of capitalism coincides with the proliferation of clock imagery or the spread of the clock made capitalism's spread around the world possible.

Proust and the scent of time

“No sooner had the warm liquid mixed with the crumbs touched my palate than a shudder ran through me and I stopped, intent upon the extraordinary thing that was happening to me. An exquisite pleasure had invaded my senses, something isolated, detached, with no suggestion of its origin. And at once the vicissitudes of life had become indifferent to me, its disasters innocuous, its brevity illusory – this new sensation having had on me the effect which love has of filling me with a precious essence; or rather this essence was not in me it was me. ... Whence did it come?”

“What did it mean? How could I seize and apprehend it? ... And suddenly the memory revealed itself. The taste was that of the little piece of madeleine which on Sunday mornings at Combray (because on those mornings I did not go out before mass), when I went to say good morning to her in her bedroom, my aunt Léonie used to give me, dipping it first in her own cup of tea or tisane. The sight of the little madeleine had recalled nothing to my mind before I tasted it. And all from my cup of tea.”

De tijd stond even stil

De tijd stond even stil
Als een schot in de dag
Daarna gingen de mensen
Aan het voorval weer voorbij

- De tijd stond even stil
Als een neergehaalde vlag
Vragen in de mist van jaren
Maken zich nu vrij...

Time stood still a moment

Time stood still a moment
Like a shot in the day
Then the people let
Occurrence pass them by again

Time stood still a moment
Like a stationary flag
Questions in the mist of years
Release themselves now...

Ramses Shaffy and Liesbeth List

“What makes hope such an intense pleasure is the fact that the future, which we dispose of to our liking, appears to us at the same time under a multitude of forms, equally attractive and equally possible. Even if the most coveted of these becomes realized, it will be necessary to give up the others, and we shall have lost a great deal. The idea of the future, pregnant with an infinity of possibilities, is thus more fruitful than the future itself, and this is why we find more charm in hope than in possession, in dreams than in reality.”

Henri Bergson



Marina Abramovic during her performance 'The Artist is Present' (2012). For three months, visitors were able to have a seated session with Ambramovic. As she looked them deeply in the eyes, many people felt seen, understood and deeply connected, simply by being present.



The Ames Room is an optical illusion in which people seem to shrink as they walk to the right. It is actually trapeze shaped. This scene is from 'The Sea That Thinks' (2000), a fiction film that portends to be a documentary. Director Gert de Graaff explores who people are by asking them: Who are you? When they mention names, jobs, family relations or emotions the interviewer insists: 'I asked who you are' to which there is no correct answer. Subjective time is essentially about being and feeling your own reality. Even if it is subjective.

4.7 The time diversity framework

Without the intention of forcing our thinking into new boxes, I discern two overarching categories of time; natural time which can be said to exist independent from humans and nurtured time that takes the form of socially engineered constructs. Both of these categories can be attributed specific qualities as summarized below.

Table 7: Classification of time concepts according to nature and nurture

Nature (circadian, eternity, duration)	Nurture (clock, temporal order, situational)
Rotating	Mechanical
Regenerative	Consumptive
Self-sustaining	Expanding
Cyclical	Single-use-disposable
Emotional	Rational
Matriarchal	Patriarchal
Qualitative	Quantitative.
Semiotic	Numerical
Approximate	Exact
Heterogenic / Diverse	Homogenic / Unvaried
Craftmanship	Machine production
Holistic	Compartmental
Bends, curves, round	Straight lines, symmetry, square
Experiencing	Measuring

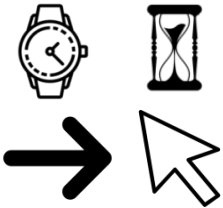
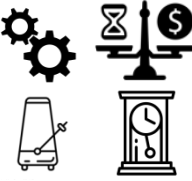

Table 8: Classification of time concepts when divided between nature and nurture


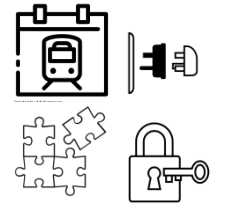


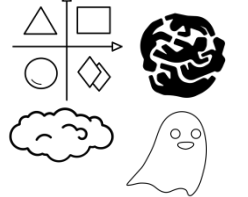


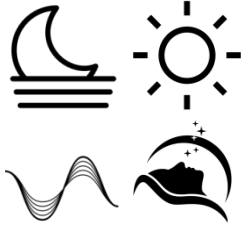





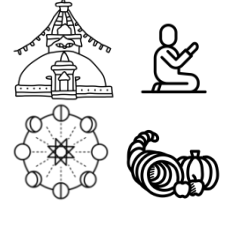
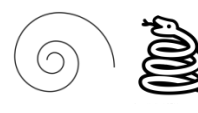


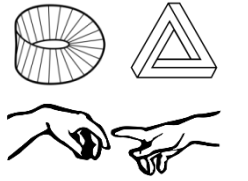

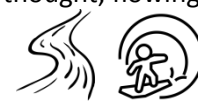

	Micro	Meso	Macro
Nurture	Situational time	Temporal order	Clock time
Nature	Duration	Eternity	Circadian rhythm

Table 9: Summary of the most important tools, ordering principles and authors per concept

Type	Tool	Ordering principle	Author
Clock time	Market	Quantified performance	Ford, Taylor
Temporal order	Connecting strategy	Authority centralization	Goudsblom, Peters
Situational time	Culture	Zeitgeist / location	Kapuscinski, Bluedorn
Circadian rhythm	Sense	Biological response	Meijer, Ekirch, Huxley
Eternity	Origin stories	Collective subconscious	Van der Meer, Hermsen
Duration	Intuition / inspiration	Dasein / Flow	Bergson, Proust, Arendt

Table 10: summary of the full time diversity framework

Type of time	Tool	Verbs	Expressions	Disciplines
Clocktime, Objective time 	(Atomic) clock, geometry, algebra 	Counting, tallying/calculating, measuring, comparing, destroying, synchronizing, ticking, moving	Chronological, forward, progress, modernity, productivity, utility, time = money, cost benefit analysis, free 	Mathematics, Physics, Astronomy, Logistics, Economics, Econometrics

<p>Temporal orders Passage</p> 	<p>Social deconstruction, connecting strategies, discourse analysis</p> 	<p>Organizing, reading, repairing, negotiating, legitimizing, orchestrating smoothing, standardizing, harmonizing, adapting, transforming, risk-minimizing</p> 	<p>Regimes, dominant practices, itinerary, time table, schedule, agenda, calendar, workflow, grids, agreements, logic, power relations, expanding networks, control = dependency, ensembles, currency, concert, infrastructure</p> 	<p>Sociology, Political science, Language studies, Organizational science, System engineering</p>
<p>Situational time, Familiar time, Cultural time</p> 	<p>Comparative value research</p> 	<p>Sharing, rushing, waiting, reading, interpreting,</p> 	<p>Zeitgeist, ideas, generations, era's, dynasties, periods, innovation, attention versus distraction, boredom, Zen, Chi, Dharma, dogma, rules</p>	<p>Archeology, History, Anthropology, Climate studies, Geophysics, Geneology</p>
<p>Circadian rhythm, Body tempo, Natural time, Biological clock</p> 	<p>Light stimuli, eyes, brain activity scans</p> 	<p>Sensing, seeing, hearing, sleeping, stimulating</p> 	<p>Tempo, hormones, neuro-transmitters, seasons, cycles, waves, tides, vibrations, contrast, chronotypes,</p> 	<p>Chrono-biology, Neuro-science, Psychology, Bio-medical science, Agriculture, Horticulture</p> 
<p>Eternity, Sacral time, Cosmic time</p> 	<p>Megalithic structures, storytelling, deeper consciousness, intuition, prayer, meditation</p> 	<p>Observing, creating, giving birth, celebrating, ceasing, being born, shaping, transforming, spiraling, opening other realms</p> 	<p>Time immemorial, Aion/Eon, fate, abundance, collective subconscious, the other side, harmony, holy days, visions, longevity, dreams, as above so below, inverse, synchronicity</p> 	<p>Astro-physics, Astro-archeology, Esoterics, Herstory, Mysticism, Sacred geometry, Quantum-physics</p> 
<p>Duration, Kairotic time, Subjective time</p> 	<p>Storytelling, reflection, meditation</p> 	<p>Being, feeling, capturing, seizing, flowing, fleeting, waning, losing track, lost in thought, flowing</p> 	<p>Kairos, eternal moment, divine inspiration, spirit/soul, inter esse, flow, tide, fulfillment, emptiness</p> 	<p>Psychology, Philosophy, Sports, The Arts (architecture, literature, music, poetry, dance, painting, sculpting, film)</p>



The wall fell from heaven by circus ensemble Royal de Luxe (Still from video taken in 02011 in Nantes). This performance of giants walking through the streets elicits all time concepts; from origin stories being told about giants, spectators using all their senses and sinking in duration, the rhythmic simulation of the giants walking and the accompanying music, to the punctual logistical operation to get the puppets moving in time, police cordoning off highways and roads to create another temporal order as well as the interplay between lackeys in red suits and audience members to enable safe passage for the puppets, everybody working together to consciously sustain a myth, to different cultures being expressed through customized clothing and language of the giants. Tortuga Films (02017) Jean-Michel Carré.

Chapter twenty two

"Good morning," said the little prince.

"Good morning," said the railway switchman.

"What do you do here?" the little prince asked.

"I sort out travelers, in bundles of a thousand," said the switchman. "I send off the trains that carry them: now to the right, now to the left."

And a brilliantly lighted express train shook the switchman's cabin as it rushed by with a roar like thunder.

"They are in a great hurry," said the little prince. "What are they looking for?"

"Not even the locomotive engineer knows that," said the switchman.

And a second brilliantly lighted express thundered by, in the opposite direction.

"Are they coming back already?" demanded the little prince.

"These are not the same ones," said the switchman. "It is an exchange."

"Were they not satisfied where they were?" asked the little prince.

"No one is ever satisfied where he is," said the switchman.

And they heard the roaring thunder of a third brilliantly lighted express.

"Are they pursuing the first travelers?" demanded the little prince.

"They are pursuing nothing at all," said the switchman. "They are asleep in there, or if they are not asleep they are yawning. Only the children are flattening their noses against the windowpanes."

"Only the children know what they are looking for," said the little prince. "They waste their time over a rag doll and it becomes very important to them; and if anybody takes it away from them, they cry . . ."

"They are lucky," the switchman said.¹⁶¹



The Little Prince, directed by Mark Osborne (02015). Children asking questions are a great inspiration to change an environment which seems set. Chapter five and six look at how the time regime is changing, due to the unforeseen circumstance of COVID-19 and due to the imagination and action of artists and protesters. Both the pandemic and art enable us to look at the world differently and judge whether this is how we like it. How to see a box with three dots and imagine it's a sheep or how to be the child that puts its nose to the window pane.

¹⁶¹ Antoine de Saint-Exupéry – Le Petit Prince, page 85-86, Wordsworth Editions, 01995

5: A tremor shakes up the time regime

Regimes can shift dramatically due to disruptive events like wars, revolutions but also pandemics. This chapter analyses how the COVID-19 pandemic affected the time regime. More specifically, how different aspects of the six time concepts declined or rose in prominence. It serves as an empirical test for the time diversity framework described in the previous chapter.

5.1 Clock time

In many ways, the pandemic demonstrated the dominance of clock time logic as a primal and embedded reflex. At the same time, clock time was put on hold for a moment as the world came to a temporary halt. The speed of the machine was lowered and efficiency and economic targets went to the background as the health crisis took frontstage.

The crisis in numbers

The COVID-19 Pandemic was a true race against the clock. A stressful period for hospital staff and ambulance personnel who worked around the clock to cure patients and extend lives. There was high time pressure to identify carriers and contain them through quarantine, self-isolation, lockdown or closed borders. Emergency hospitals were built and researchers worked topnotch to learn more about the virus, share knowledge and develop a vaccine.

Hectic times for governments officials who needed to act fast and take measures with incomplete information on the virus. Tactics that seemed to work at first had to be continually adapted. In the Netherlands and Sweden, leadership had the idea to let the virus spread in a controlled manner in order to achieve group immunity. The Netherlands came back from this decision after numbers of infections kept rising, the Swedish maintained the policy. Financial stimulus packages were arranged to prevent lay-offs.

As colleagues fell ill human resource departments had a hard time filling in the rosters. Companies analyzed for how long they could sustain lower revenue and several of them decided to quit as this crisis became the last straw.

A lot of calculating took place; to flatten the curve, reschedule activities and reorganize production lines. Statistics were the prime response and soon started dominating the news, with daily numbers of infections, death toll and the r-number, rather than qualitative analysis and comparisons between previous viruses over time such as the Spanish Flu in 1919 or AIDS, SARS, MERS and Ebola more recently.¹⁶²

¹⁶² The strong bias towards statistical models and their effectiveness were hardly discussed during the COVID-19 pandemic. Careful behavior and sustaining the restricted measures may have been aided if national governments and media did not disclose numbers and provided qualitative measures and forms of communication that proved to be successful in previous crises. An underdiscussed qualitative measure would be balanced nutrition, promotion of healthy environments, and a more robust immune system based on physical exercise. Emotional arguments and numbers on death tolls dominated the national headlines.

Consistently, political leaders based decision-making on numbers or looking for culprits, while successful policies and approaches to fight pandemics in the past and tackling root causes were underdiscussed.¹⁶³

While thousands of people were dying and 20 million people filed for bankruptcy in the United States, share prices went through the roof. Political commentators remarking how the stock market is just a graph showing rich people's feelings.¹⁶⁴ The quantified performance system seemed decoupled from the actual crisis in the real world. Some trading companies put themselves and their personnel in quarantine to speculate and make millions in extra profits.¹⁶⁵

Temporary disruption of globalized markets (health more important)

The reflex to regard countries as unique circumstances, rather than the entire world being one great connected area that required coordinated efforts, is somehow at odds with the perception of a globalized economy. The virus does not wait at the border, was often said, still, borders between countries were closed because compartmentalization is a successful strategy to cope with viruses.

The unknown nature of the virus, and the ambiguity in government responses to it, caused great uncertainty. Business was turned upside down and long term investment was postponed or renegotiated as share prices dropped. An example was the merger between LVMH and Tiffany's & Co, which took a three month delay.¹⁶⁶

The COVID-19 pandemic laid bare the vulnerabilities of globalized trade, with many governments and companies deciding to move production back to national territory. Spurred by rising labor wages and lower costs for automation processes, the trend of national maker industries was sped up during the COVID-19, possibly causing a surge in productivity on the long run.

Though the virus caused a recession in some countries, consumption of energy and emission of greenhouse gases still increased¹⁶⁷. Forest fires raged on and General Secretary of the United Nations Antonio Guterres called upon humanity to stop waging war on nature.¹⁶⁸

¹⁶³ A. Govers, 'Waarom vechten we tegen Corona zonder de oorzaak te bespreken?', One World 01 May 02020 <https://www.oneworld.nl/lezen/opinie/waarom-vechten-we-tegen-corona-zonder-de-oorzaak-te-bespreken/>

¹⁶⁴ *Krystal Ball: Why the rich are partying while country burns* [online video] The Hill Rising, 07 May 02020, https://www.youtube.com/watch?v=S_3ySDcB5kY&t=176s, Accessed on 07 May 02020

¹⁶⁵ Ramdjan, T. Compleet bedrijf in zelfisolatie in Oost: 'We hebben tenten opgezet', 19 March 02020 <https://www.parool.nl/nieuws/compleet-bedrijf-in-zelfisolatie-in-oost-we-hebben-tenten-opgezet~ba5d62fb/>

¹⁶⁶ NOS e. Louis Vuitton koopt na geruzie alsnog juweliersbedrijf Tiffany & Co. Dutch Broadcast Foundation 19-10-02020 <https://nos.nl/artikel/2354330-louis-vuitton-koopt-na-geruzie-alsnog-juweliersbedrijf-tiffany-co.html>

¹⁶⁷ NOS g.VN: concentratie broeikasgassen opnieuw hoger, ondanks corona NOS (Dutch Broadcast Foundation) 23-11-02020 <https://nos.nl/artikel/2357782-vn-concentratie-broeikasgassen-opnieuw-hoger-ondanks-corona.html>

¹⁶⁸ NOS i.VN: 2020 wordt in Europa warmste jaar ooit gemeten (Dutch Broadcast Foundation) 02-12-02020 <https://nos.nl/artikel/2359025-vn-2020-wordt-in-europa-warmste-jaar-ooit-gemetten.html>

Working and learning from home

A stressful time too for entrepreneurs whose businesses were deemed non-vital, such as bars and cafés or the leisure or sport industry. Supermarkets, pharmacies and delivery services saw an increase in revenue while leisure, entertainment and travel industries largely shut down.

Homeschooling increased and the amount of school hours decreased. Many parents chose to let their children play outside more often rather than stick around behind a screen. Cancellation of tests and increased playing hours meant a reduced stress on productivity of pupils, yet summer schools and extra tutor hours were employed to gain on learning deficits. According to research by the Institute for Labor, a pause in learning may not decrease chances for children at all¹⁶⁹. A new generation of homeshooled children developed skills for the digital age that may prove inventive and useful in the future socio-economic structure.

¹⁶⁹ Research by the Institute for the study of Labor shows French students from middle class families gained better socioeconomic positions when the central exams were canceled in 01968 (Steenbeeke, 02020)

5.2 Temporal orders

The COVID-19 pandemic led to a gigantic rearrangement of society, from modes of behavior to production methods. Alternative organization modes new connecting strategies were needed and developed. Examples are plexiglass screens, online meetings and package delivery.

A lot of (re)negotiating and rearranging took place, from school and work from home to use of spaces outside and inside, to travel movements from yellow or red coded areas and production delays and shortages. People were forced to be creative

Dancing a new dance together

Temporal orders or passages are situations we all keep intact, logics we adhere to, a constant playful or forceful interaction, depending on the participants. COVID-19 required us to learn new movements to stay in line. Wear a mouth mask or not? Working at home or not? Shaking hands or bumping elbows? Society adapted rapidly to these new norms¹⁷⁰ and also contested by several groups who did not see benefit in the new logic. There were protest groups but also political leaders who rejected the virus as being lethal, which were met by counter-protesters. Such discrepancies represent blocked paths that can be solved in countless ways by establishing new connections.¹⁷¹

Enhanced solidarity could be observed in keeping distance, not prepping groceries. Social actors were anticipating and producing herd behavior. Whether the new dance or swarm movement was performed successfully – i.e. resulting in a steady order – depended on communication methods of leadership, the prospects of gaining something from conducive behavior as crisis intensity dropped – or failed to drop – and the ability of the participants to make sacrifices.¹⁷²

Bargaining chips and ensembles

Massive lay-offs and reduced economic activity required improvisation and so called 'bargaining chips'; reserves that allow participants in the order to continue rather than break down. In the case of European countries this was government loan support which had to be embedded in official law and terms so companies could file for financial assistance that were acceptable according to members of parliament.

Use and rearrangement of infrastructure

Some temporal orders ceased to exist, such as manufacturing lines from China that shut down or were delayed. Companies decided to build new orders by producing face masks at home after high quality face masks became scarce and hospital staff were dying from infections. This underlines the connections and ensembles as temporary configurations that are flexible and can change.

¹⁷⁰ So much so that TV series or movies that depicted big crowds without social distancing looked odd since the referral point to the real world had changed, what was normal before now seemed abnormal.

¹⁷¹ Connections equally stand for human relations, networks and orders that can be established or disrupted.

¹⁷² P. Peters, De Haast van Albertine, De Balie, Amsterdam, 02003, p.329

As crowded places needed to be prevented public transport became a problematic mode of transport. Bike lanes were installed in metropolitan areas as a safe open-air transportation method. Cycling had been promoted in certain cities before due to health benefits, the COVID-19 pandemic provided a window of opportunity for cities like Milan, New York and Paris to make these connecting strategies permanent and reserve more room for pedestrians as well.

Next to bike logic, car logic was enhanced as well, since it represented a contained vehicle within which private owners could not infect others. Locations were adapted to the automobile such as 'testing streets' on parking lots, drive-in cinema's and even a horror mansion.¹⁷³ Airplanes were said to be safe modes of transport due to ventilation, but people got infected on board despite wearing facemasks. Even more so on cruiseships, which had been a notorious place for disease before but during the COVID-19 pandemic break-outs caused ships to find harbors to dock without success.

Traffic jams during rush hour ceased to exist. A demonstration of the well known fact that more tarmac does not help while less road users does. Despite advise to stay at home, traffic numbers were at the same level as before the crisis by the end of 2020.¹⁷⁴

Coding destinations

Travel bans were put in place as soon as the infectious nature of the virus became known. Flights were canceled, holiday plans put on hold and some tickets refunded. Fearful of the COVID-19 pandemic spilling over into their countries, countries started color coding safe and unsafe destinations and imposed quarantine measures for certain areas for seven to fifteen days.¹⁷⁵ This is a move away from clock time and temporal orders, disabling certain economic connections and profitable activity until further notice, prioritizing health and public safety over the economy.


¹⁷³ Algemeen Dagblad, Spookhuis wordt coronaproof: 'deze drive-in is misschien nog wel enger' 25 June 2020 <https://www.ad.nl/auto/spookhuis-wordt-coronaproof-deze-drive-in-is-misschien-nog-wel-enger~acc18d27/>

¹⁷⁴ G. ter Maat, ochtend- en avondspits bestaat niet meer, aantal files nauwelijks op een hand tellen, De Telegraaf/ ANWB, 09 October 2020

¹⁷⁵ NU.nl, Kabinet raadt vakantie buiten Europa af: 'We gaan niet repatriëren', 03 June 2020 <https://www.nu.nl/coronavirus/6055510/kabinet-raadt-vakantie-buiten-europa-af-we-gaan-niet-repatrieren.html>

In- en afschakelen


Zorg voor structuur. Zet je wekker, kleed je aan en start je dag. Zo begin je de dag duidelijk, maar kun je ook beter afschakelen als je werk is gedaan.



Trek grenzen


Wat is **werk**tijd en wat is **prive**-tijd.

Wijs hiervoor een plek aan in je huis die voor werk is bedoeld. Heb je geen werkkamer, dan voldoet het om een hoekje in te richten. Werk alleen daar, zodat je er ook van weg kunt.




Stel doelen

Stel voor de inhoud van je werk realistisch haalbare en kleine doelen die je kunt afvinken. Beloon jezelf ook voor het behalen van een doel. Besef dat je op je werk niet acht uur productief bent, dus verwacht dat ook niet thuis.



Neem regie

Wees je ervan bewust dat jij degene bent die je werkdag moet reguleren, want de context – de werkvloer – is er voorlopig niet. Neem dus de regie, zodat je niet alleen goed kunt werken maar ook kunt ontspannen.



Advise for working at home to prevent illness from Dutch employer organization Arbodond. Manuals, forms and instructions are symbols of temporal orders since they enable a shared understanding and behavior. During the COVID-19 Pandemic many new instructions were spread throughout the Netherlands to induce new modes of conduct. Examples being social distancing posters, mouth mask stickers and road maps that indicated levels of lockdown.

The four pieces of advice given in this infographic are: 1) maintaining structure by performing daily rituals such as waking up and getting dressed. 2) dividing work time and free time clearly by dedicating a special corner of the house to workspace. 3) Setting feasible goals, awarding achievements and being okay with not feeling productive a full eight hours. 4) Take control because no one else will stimulate you to take a break or get back to work.

Employers were lenient towards employees in performing less due to the special circumstances. As it became clear that the COVID-19 pandemic could last for another year or more, people tried the best they could to keep up with regular work, sometimes leading to burnouts and added stress.



Borders between countries turned into obstacles as different policies were at play between countries. The sign reads: Every non-essential journey to a foreign country is prohibited ANP

5.3 Situational time

A culture shift in government and the economy

That the neo-liberal zeitgeist seems to have had its heyday was already concluded in the summer of 2019,¹⁷⁶ but it became extremely clear when austerity policies were left behind en masse. Helped by low interest rates, Northern European countries invested heavily to prevent lay-offs by providing supplementary pay, and big airlines were supported with loans. Countercyclical economic policy became fashionable, but investments in the green economy were not always a priority and often put on hold or postponed.¹⁷⁷

There was big upheaval in the Netherlands when Booking.com, a major multinational that made 5 billion euros in profit in 2019, requested government support. It is indicative of the short time span – and the low ethical concerns – that is present in hypercapitalist company culture.¹⁷⁸ The opposite was true for family businesses, who performed better during the crisis and did what they could to hold on to personnel. They were equally aided by government support but invested in the continuation of their company for the long run, trying to keep a steady growth rate with their successors in mind, rather than shareholders being the principal concern.¹⁷⁹

Government support for airlines led to a big debate, since a majority of people in the Netherlands thought the flight industry shouldn't grow any more due to environmental damages and not kept alive with public money. As a result, conditions for more sustainable and less hindrance by the industry were proposed and adopted.¹⁸⁰ Long term thinking was promoted by some while sustainable investment in general took to the background as short term crisis thinking prevailed.

A cultural shift also took place as governments published lists of vital workers and professions, raising awareness that some professions deserved more appreciation than had previously been the case. Hospital staff, police officers, garbage collectors, teachers and food provisioners serve as the backbone of society.¹⁸¹ There was talk of higher appreciation and financial rewards for these professions. They had been protesting for better working conditions before but the extreme pressure from the COVID-19 pandemic made their case extra valid.

¹⁷⁶ M. Fahnbulleh, The Neoliberal Collapse Markets Are Not the Answer, Foreign Affairs January issue 2020 <https://www.foreignaffairs.com/articles/united-kingdom/2019-12-10/neoliberal-collapse>

¹⁷⁷ M. Stellinga, Kabinet past opzet Groeifonds aan na forse kritiek NRC Handelsblad 01 December 2020 <https://www.nrc.nl/nieuws/2020/12/01/kabinet-past-opzet-groeifonds-aan-na-forse-kritiek-a4022111>

¹⁷⁸ Quote, Booking.com ontvangt al jaren miljarden staatssteun, 16 April 2020 <https://www.quotenet.nl/zakelijk/a32173315/bookingcom-ontvangt-al-jaren-staatssteun/>

¹⁷⁹ T. Jansen, Wakker Nederland, De Stand van Nederland, Familiebedrijven, WNL, 24 October 2020 <https://wnl.tv/2020/10/24/familiebedrijven-doen-het-erg-goed-in-coronacrisis-bijna-niemand-ontslagen/>

¹⁸⁰ NOS a. Angst voor corona zorgt wereldwijd voor extra fietspaden, NOS Dutch Broadcasting Foundation NOS 12 May 2020 <https://nos.nl/collectie/13841/artikel/2333670-angst-voor-corona-zorgt-wereldwijd-voor-extra-fietspaden>

¹⁸¹ P. De Beer, Klappen voor de zorg, meer loon: er zijn betere manieren om werknemers gelukkiger te maken, Trouw, 01 November 2020, <https://www.trouw.nl/leven/klappen-voor-de-zorg-meer-loon-er-zijn-betere-manieren-om-werknemers-gelukkiger-te-maken~b9b1bb716/>

Value systems per country

Cultural values were a driving force in the outbreak of the COVID-19 pandemic. The epidemic epicenter was a wet market, rooted in the cultural habit of eating wild animals and slaughtering and selling these under unhygienic conditions. But also in a patriarchal culture of patronage and political postponement. Local governments in Wuhan repeatedly neglected warnings from the WHO, epidemiologists and animal right activists to close down wet markets, presumably out of fear for constituents or political self-interest. Wet markets and factory farms enable exchange of blood, faeces and viruses between species. For decades they are known as high risk hotspots for virus mutations and infectious diseases turning into zoonoses, but long term thinking does not exist in politics based on election cycles. Pandemics are disasters in slow motion, much like climate change and loss of biodiversity. They are not highly visual phenomena and therefore trigger less urgency in the audience and political authorities to act only when it's too late.¹⁸²

China is a state-led, one-party country with a culture rooted in Confucianism. The family or the collective is deemed more important than the individual.¹⁸³ Western societies take the individual as the point of departure and depend on improvisation and market dynamics to steer the country, rather than government dictates. This led to less drastic measures and a slower response rate in Europe because responsibility was shared among individuals.

Response time was also determined by regional contexts. Asian countries had a relatively recent experience with the deadly and highly contagious SARS virus in 2002. The African continent has a relatively young population that is less susceptible to suffer heavily from the virus. Another example are Indian workers facing a more real threat of dying from starvation than from a virus infection as the economy came to a halt. Political leadership in the United States, Brazil and Russia was reluctant to acknowledge the severity of the virus. Within Europe, differences in political culture translated to strict lockdowns and curfews in highly centralized and classic Christian countries such as Italy, Greece, Spain, France and Belgium. Decentralized protestant countries took less rigorous measures.¹⁸⁴ This led to vastly different time experience between continents, between those locked up out of fear for the virus, and those trapped in the socio-economic consequences of the COVID-19 pandemic.

¹⁸² B. Brouwer, D. van Duijn, S. el Khinifri, Dutch Disaster Differentiation, a comparative case-study of disaster approach after the passing of hurricane Irma and the outbreak of Q-fever in the Royal Kingdom of the Netherlands, college paper for Natural Hazards and Disasters, Wageningen University and Research, 2019

¹⁸³ Not everybody belongs to the same collective in China; Han-Chinese receive preferential treatment while genocide is being waged on the muslim Uighur population in Xinjiang province through sterilization, cultural annihilation and 'reeducation' (Steger, 2020). China is as much an expansive clock time based regime as any other world power. The regime acts 'in harmony with the collective' selectively.

¹⁸⁴ M. Daventry, Curfews and restrictions imposed across Europe as COVID-19 cases soar. Associated Press, Euronews, 24 October 2020 <https://www.euronews.com/2020/10/23/curfews-and-restrictions-imposed-across-europe-as-covid-19-cases-soar>

Socioeconomic time

Many people took refuge in holiday homes, notably Parisians.¹⁸⁵ In the countryside people could evade the densely populated, infection-prone metropolises. This meant a completely different surrounding closer to nature and quieter city life with less congestion. In the Netherlands, holiday homes in sparsely populated regions gained popularity.¹⁸⁶ One might expect stress levels and the tempo of life to be slower there, but the first facility buyers informed for was the speed of the internet connection, so they could continue their former lifestyle. Where some were convicted to cramped apartments in the city with little access to green, others passed the COVID-19 pandemic in luxury homes with gardens.

Differences between cohorts

Life in nursing and elderly homes became deadly boring as no visitors were allowed.¹⁸⁷ For the youth, holiday plans were canceled and there were fewer places to go out and explore, but adapting to the new reality. New rules – and how to break them – also brought excitement. Though in a less heroic fashion than during World War II a German public awareness campaign called people who stay at home heroic. For those who graduated the pandemic defined their coming of age.

Digital education

In the US, children that depended on school lunch missed necessary nutrients and suffered reduced attention spans.¹⁸⁸ Some children were not able to participate in class because technology or learning space was lacking, leading to learning deficits.¹⁸⁹ Online teaching increased boredom as social interaction and physical stimuli were reduced. Students lagged behind because learning and working together is more fun and enthusiastic.¹⁹⁰ The COVID-19 pandemic made vulnerable children more visible to schools, allowing them to act where before they did not get as many signals before.¹⁹¹

¹⁸⁵ France24.com, Scramble for the countryside: Parisians flee capital as lockdown begins, France24, 17 March 02020 <https://www.france24.com/en/20200317-scramble-for-the-countryside-parisians-flee-capital-ahead-of-lockdown-deadline>

¹⁸⁶ NOS d. Corona versnelt de trek naar het platteland, zeggen makelaars, NOS Dutch Broadcasting Foundation, 09 October 02020 <https://nos.nl/nieuwsuur/artikel/2351705-corona-versnelt-de-trek-naar-het-platteland-zeggen-makelaars.html>

¹⁸⁷ RTL News b, Zorgen om ouderen in quarantaine: is eenzaamheid dodelijk? 16 April 02020 <https://www.rtlnieuws.nl/nieuws/nederland/artikel/5092571/eenzaamheid-ouderenzorg-coronavirus-dilemma-bezoek>

¹⁸⁸ D. Duret, School lunch programs are losing millions feeding hungry kids; they could be broke by fall, USA Today, 31 May 02020, <https://eu.usatoday.com/story/news/education/2020/05/31/coronavirus-school-lunch-programs-going-broke-because-kids-hunger/3101507001/>

¹⁸⁹ Kuipers, R., Kinderen van laagopgeleide ouders liepen 'zorgwekkende' achterstanden op door sluiting basisscholende, Volkskrant, 04 November 02020 <https://www.volkskrant.nl/nieuws-achtergrond/kinderen-van-laagopgeleide-ouders-liepen-zorgwekkende-achterstanden-op-door-sluiting-basisscholen~bc3b7aaf/>

¹⁹⁰ A. Ridderbeks, 'Teacher at an elementary school for children with learning problems', [personal communication], 31 May 02020

¹⁹¹ A. Nelis, Scholen ontdekken door corona meer kwetsbare leerlingen, de Monitor, 1 June 02020, <https://demonitor.kro-ncrv.nl/artikelen/scholen-ontdekken-door-corona-meer-kwetsbare-leerlingen>

Touristic destinations

As tourists stayed away, holiday destinations became deserted places that felt surreal to the inhabitants. Amsterdam city residents enjoyed the peace and quiet they had not been able to experience for a long time. The pandemic demonstrated how much tourism had dictated the city landscape.¹⁹²

'Staycationing' lead people to appreciate local holiday destinations within national borders, sometimes in regions they had never been to before¹⁹³. Dutch people became more satisfied with their own country as news footage of the COVID-19 crisis in other countries reached the Netherlands.¹⁹⁴ This is a typical example of situational time, revaluing local traditions and diving into local history and habits (such as carbit shooting). The tendency was to live more locally, a move away from clock time and towards situational time.



White t-shirts painted with hearts on them for medical personnel. A TV program called 'Frontline Messages' paid tribute to health care professionals, medical staff, mailmen and police officers. A coordinated applause in the beginning the pandemic lauded them as athletes that were doing extreme marathons of work. Pubquizes and balcony parties were organized during summer. The pandemic brought people together and social cohesion seemed to increase, though hoarding of toilet paper also demonstrated antisocial panic behavior. Photo by Olaf Kraak, ANP Nederlands Dagblad 17-03-02020

¹⁹² M. Couzy, Is de triomf van de stad ten einde?, Het Parool, 23 May 02020, <https://www.parool.nl/nieuws/is-de-triomf-van-de-stad-ten-einde~be352e55/>

¹⁹³ RTL News, Vakantie in eigen land populairder: hier moet je op letten in coronatijd, RTL News, 24 April 02020 <https://www.rtlnieuws.nl/economie/artikel/5101871/corona-vakantie-eigen-land-vakantiehuisje-vakantiepark-populair>

¹⁹⁴ Het Parool, Nederlanders zijn gelukkiger met Nederland, ANP (Dutch Press Association), 30 April 02020, <https://www.parool.nl/nieuws/nederlanders-zijn-gelukkiger-met-nederland~b2afc3bc/>

5.4 Circadian rhythm

During the COVID-19 pandemic, a temporary surge towards circadian rhythm came about. People's rhythms became much less dictated by structures at work and much more by stimuli in the natural surroundings. Heavy industries closed down, causing the Mount Everest in India to become visible from surrounding cities.¹⁹⁵ Birdsong became audible as cars were off the streets and the rubber on tarmac produced less noise pollution.¹⁹⁶ Levels of chemical and light pollution dropped as heavy industries closed down, making for better enjoyment of the natural environment¹⁹⁷. At the same time, people slept in more often, approaching the rhythm of the weekend, possibly exposing themselves to less daylight.¹⁹⁸

Senses and stimuli

To make life more pleasant and less lonely, many people brought plants or pet animals into the house. Taking care of another organism that lives at a different time scale and has different moments of activity aligns human bodies to nature's rhythm.¹⁹⁹

Burnouts, laptops that are open for too long, less social contact and a lack of good chairs, the digitalization of the working environment resulted had detrimental health effects.²⁰⁰ Though some workers indicated there were many benefits to self-arranging work as well.²⁰¹ Extended working hours at nighttime and being available for colleagues irregularly caused chronic fatigue. Many people adapted to new norms and were searching for connecting the old reality to the new.

Nightlife in clubs became minimal. Drug intake increased for some people while it decreased in others. Some people expressed the intention to stay clean and reported feeling more fit while others missed dancing and sporting to express their energy. The stress caused by the crisis led some people to drink and smoke more while

¹⁹⁵ P. Luttikhuis, De lucht boven Wuhan en Milaan was in lange tijd niet zo schoon, NRC Handelsblad, 17-03-02020 <https://www.nrc.nl/nieuws/2020/03/17/de-lucht-boven-wuhan-en-milaan-was-in-lange-tijd-niet-zo-schoon-a3993999>

¹⁹⁶ R. Kapitein, Hoeveel stiller is het nou echt tijdens de coronacrisis?, Omroep Gelderland, 07-04-02020, <https://www.omroep gelderland.nl/nieuws/2443487/Hoeveel-stiller-is-het-nou-echt-tijdens-de-coronacrisis>

¹⁹⁷ J. Carter, Coronavirus silver lining: less pollution means more night sky – view it from home while you plan trips to world's best dark-sky destinations, SCMP, 19-04-02020 <https://www.scmp.com/lifestyle/travel-leisure/article/3080415/coronavirus-silver-lining-less-pollution-means-more-night>

¹⁹⁸ J. Meijer, "Professor neuropsychology at LUMC" [interview] 11 August 2020

¹⁹⁹ C. Testerink, 'Grote Vragen, interview with Christa Testerink, molecular plant physiologist at Wageningen University and Research' [presented by Rob van Hattum, directed by Stephane Kaas], VPRO 20 October 02020, https://www.npostart.nl/grote-vragen/22-10-2020/VPWON_1301010

²⁰⁰ NOS c. 'Fysiotherapeuten zien meer fysieke klachten door thuiswerken', NOS (Dutch Broadcast Foundation), 29 October 02020 <https://nos.nl/artikel/2345833-fysiotherapeuten-zien-meer-fysieke-klachten-door-thuiswerken.html>

²⁰¹ NOS j. Maandenlang thuiswerken: 'Mijn leven is een saaie pap geworden', NOS (Dutch Broadcast Foundation), 03 December 02020 <https://nos.nl/artikel/2359177-maandenlang-thuiswerken-mijn-leven-is-een-saaie-pap-geworden.html>

intermediate users consumed less.²⁰² For those who developed mental problems time might have moved slower, or felt like a drag, while those who ventured on exciting new adventures and saw opportunity in crisis saw time flying by.

Indoor activities were temporarily shut down or limited in capacity. This meant outdoor parks became much better visited, in some instance so crowded that they had to be closed down. People gained weight as they practiced less sports and ate food for concolation. These 'Corona Kilo's' and irregular eating moments may have brought bodies less in line with the rhythm of sunrise and sunset, with bodies not knowing where to put the energy that it was receiving daily.

Biological response

The air quality and water quality increased dramatically. So much so that dolphins were swimming into Venice again. Animals were seen approaching humans on national park the Veluwe, people took more walks in nature.²⁰³

Sleeping patterns

Sleeping patterns got better for those who usually slept bad, and worse for those who usually slept good. Financial worries kept people awake at night, or mulling over how to continue with regards to the obstacles on their path²⁰⁴. In the first three months of the crisis flight traffic decreased by 90% causing a drop of 20% to 60% in toxic air pollutants.²⁰⁵ City residents living near airports enjoyed better sleep and cleaner air. Conversations were held during the day without being interrupted, sleep cycles continued during the night, making people realize what they had missed before.²⁰⁶

Joke Meijer describes how during the COVID-19 pandemic people developed a tendency to sleep in longer in the morning if they did not have meetings planned. People started living a bit like in the weekend, possibly leading to disrupted rhythms if not corrected by going to bed earlier again.

²⁰² TRIMBOS, Drugsgebruik, drugspreventie en het nieuwe coronavirus
<https://www.trimbos.nl/kennis/corona/drugs-en-corona>

²⁰³ M. Bleijenberg "Communication advisor Natuur en Milieufederatie, project leader Nacht van de Nacht, and DJ", [interivew], 15 July 02020

²⁰⁴ S. Luijters, De coronacrisis zorgt voor slaapproblemen. Of toch niet?, Het Parool, 22 November 02020,
<https://www.parool.nl/ps/de-coronacrisis-zorgt-voor-slaapproblemen-of-toch-niet~bd9b859c/>

²⁰⁵ NOS b. Enorme milieuwinst Schiphol door corona, maar hoe nu verder?, NOS (Dutch Broadcast Foundation) 14 June 02020, <https://nos.nl/artikel/2337243-enorme-milieuwinst-schiphol-door-corona-maar-hoe-nu-verder.html>

²⁰⁶ M. Kruyswijk, Omgeving Schiphol geniet van rust: 'Opeens hoor je de vogels weer fluiten'. Het Parool. 28 March 02020 <https://www.parool.nl/nieuws/omgeving-schiphol-geniet-van-rust-opeens-hoor-je-de-vogels-weer-fluiten~b77e256e/>



Thomas Lievestro in his newly arranged work space. Photo by Camilla van Wirdum. Plant shops and hardware stores gained higher revenue during the lockdowns as more people wanted to create a liveable working habitat. (het Parool, 11-05-02020)

5.5 Eternity

A heavy burden on those who had to keep people separated at the moment of death. Sadness over burials with a maximum capacity of thirty people. While some lives ended, some were extended, and some also began. Fragile newborns could not meet their families and only wave at them through glass.²⁰⁷ New phases in life for those who lost a loved one or grew into a bigger family. The eternity time concept was visible in heightened awareness that things could not go back to the way they were and contemplation over the meaning of the virus and of life.

Sacral time and origin stories – birth of a new world

The COVID-19 pandemic was a moment of contemplation for humanity. There was room for boredom and emptiness. Theologist Paul van Geest describes this as *otium*, a void full of potential, a moment of contemplation about where our society is headed and if what we are doing feels right.²⁰⁸

To many people it became visible what the effect was of short term thinking and destruction of nature. And at the same time, what other world is possible if we do not pollute nature or keep animals under appalling conditions. A world that could not be imagined became manifested for all to see, which in religious terms would be called a miracle, as decades of neo-liberal policy had declared ‘there is no alternative’.

People fostered the hope and belief that a virus transcending borders would teach humanity that the world is one and all organisms are interconnected. Or that humanity would learn lessons from the pandemic that would help to concert efforts to tackle climate change and income inequality. That it would show us a way of getting together because everyone is equally affected. This feeling of hope and prospect is described with the Latin word *Spes* and a spiritual activity. This hope waxed and waned throughout the crisis as some countries showed solidarity in developing vaccines together and sharing knowledge open source while the virus was also used by politicians for blame games and caused rifts in society.

Deep consciousness and vocation

The uncertainty surrounding the virus, the unknown time it would take to go ‘back to normal’, a literal lack of perspective was the hardest part of the crisis. In Latin this is called a *gnosis*. Though every crisis is accompanied by pain, it can be a moment of growth if the void is used for introspection.²⁰⁹ The word crisis was used to signal the highest point of fever, the decisive moment in which a patient was to die or recover from the infection, the symptoms becoming heavier or receding. In this time the patient has delusional dreams and can experience epiphanies, so called messages

²⁰⁷ H. van der Beek, Project.– Leven met Corona, Kersverse moeder Linda houdt raamvisite: ‘We schoten allebei vol’, Het Parool, 25 Maart 02020, <https://www.parool.nl/nieuws/kersverse-moeder-linda-houdt-raamvisite-we-schoten-allebei-vol~bba2594e/>

²⁰⁸ S. Eijffinger, C. de Bourbon de Parma and P. van Geest, Wat is Wijsheid? *Adveniat, Baarn*, 02020

²⁰⁹ J. Hermsen “Philosopher, novelist and publicist”, [interview], 02 July 02020

from the subconscious. Many companies and leader used the COVID-19 crisis to change course and close old chapters.

Many people thought about their purpose in life, and whether what they were doing really made them happy, if this was what they existed for on earth. Some people changed jobs out of necessity, or transitioned into careers they dreamed of. This is described with the word vocation, a holy dedication and commitment to learning and living something. Craft professions such as wood working, knitting sweaters and conserving food became more popular.²¹⁰

Connection to the other side

Prayers were done and candles were burnt for those who passed away. Spiritual counselors provided help to those who lost loved ones that had been alive and kicking only a few days before. Happy commercials that propagated infinite possibilities made way for an earnest tone, as if everybody realized life was finite. Time seemed to stand still a moment and the main preoccupation was with the wellbeing of others.

There was talk of a babyboom nine months after the first lockdown, similar to those after car free Sundays in the 1970's and after Second World War but researchers pointed out that reduced economic perspective would counter such an effect.²¹¹

Religious services switched to modern technology fairly rapidly, but for older people it was harder to access through digital means.²¹² Church goers missed celebrating life together²¹³. Holiness is not as easy to experience through a screen.

²¹⁰ A. Boothby, De kansen van de crisis, Uitkrant p.10, Autumn/Winter 02020
https://issuu.com/iamsterdam/docs/uitkrant_najaar_2020

²¹¹ EenVandaag, Meer tijd voor seks door coronacrisis, maar een geboortegolf blijft waarschijnlijk uit, AvroTros, 17 March 02020 <https://eenvandaag.avrotros.nl/item/meer-tijd-voor-seks-door-coronacrisis-maar-een-geboortegolf-blijft-waarschijnlijk-uit/>

²¹² F. Eiseling, 'Massage therapist and church attendant' [Personal communication] 05 September 02020

²¹³ B. Roetman and M. van Houten, Waardering voor de digitale viering, maar kerkgangers missen de ontmoeting, Trouw, 29 May 02020, <https://www.trouw.nl/religie-filosofie/waardering-voor-de-digitale-viering-maar-kerkgangers-missen-de-ontmoeting~bef8a3eb/>



Poster saying 'we cannot go back to normal, because 'normal' was exactly the problem. This is an example of heightened awareness during the COVID-19 pandemic and people spreading a message, albeit not in a very hopeful manner. Judging by the font it is an action by Extinction Rebellion, the action group that wants to protect biodiversity and prevent irreversible climate change. This poster is located on the Stadhouderskade in Amsterdam.

5.6 Duration

The outbreak of the COVID-19 virus was an extraordinary event that lifted people out of their routines. Some people experienced the sensation of breathing again because fast-paced life had been crushing them, others suffered severe stress from lack of income or personal health. The pandemic was a period that impressed vivid memories onto people as they experienced new phenomena but also one of diluted and blurred time as freedom of movement was limited and new routines seemed endless.

Alternative activities and games

Working from home spurred many people to take on home maintenance chores and gardening. Hardware stores and garden centers were busier than ever before. As regular indoor entertainment activities were closed down, arts and crafts, board games and cooking became popular pastimes that required skill and attention and could lift people out of time. Higher consumption of video-on-demand, take-away social media content would suggest reduced experience of monumental moments. Festivals and concerts were canceled, museums were closed to the public, denying people otherworldly experiences with art. At the same time, tiny concerts for 30 people with increased intimacy at which staff went at length to provide safety imprinted precious and unique memories that will be remembered years from now.

Physical movement, sports and flow

Financial worries prevented people from experiencing flow. Biking or walking to and from work used to be a moment of reflection during which employees could leave work behind. Due to working at home these moments were missed and resulted in the habit to walk.²¹⁴ Couples that were usually separate during working hours now spent more time in the same space, resulting in fondness of each other, tension building up, or both at the same time.²¹⁵ Singles settled for one particular contact to reduce the chance of infections, leading to extended relationships and living together sooner than would usually be the case. Some households experienced stretched time while for others it contracted.

Choir practices turned out to be superspread events. Live and collective singing was thus halted, but at the same time people found a lot of comfort in music and special songs were recorded about the pandemic. Vera Lynn's wartime classic *We'll meet again* became popular as friends had to keep separate during lockdowns.

Sports halted for a moment and were practiced at home through screens. Several people reported gaining weight because they were locked up in the house. Large-

²¹⁴ K. Blikendaal, Inwoners Groene Hart massaal aan de wandel door corona: 'Je komt mensen tegen die je anders nooit zag', *Algemeen Dagblad*, 27 November 2020 <https://www.ad.nl/gouda/inwoners-groene-hart-massaal-aan-de-wandel-door-corona-je-komt-mensen-tegen-die-je-anders-nooit-zag~a6ea0448/>

²¹⁵ NOS h. Bedrijven worstelen met thuiswerken, 'mentale gesteldheid is ook belangrijk', NOS (Dutch Broadcast Foundation), 01 December 2020, <https://nos.nl/artikel/2358916-bedrijven-worstelen-met-thuiswerken-mentale-gesteldheid-is-ook-belangrijk.html>

scale tournaments were postponed or played without audience. Surrogate events became internet hits, such as Jelle's Marble Run which mimicks Formula 1 racing. Open air sports such as running, tennis and skating became more popular.

If people were not experiencing élan vital by being outdoors, perhaps they were captivated by attentive tasks such as spending time reading or daydreaming.

In between time

Many people noted how they lost track of time during the COVID-19 pandemic, not knowing the exact day because weekend activities that would usually provide structure could not go on. Annine van der Meer remarked she was only guided by the change of radio hosts every four hours. Marjolijn van Heemstra noted how she only knew what day it was because of her kids needing to go to school.²¹⁶

Canceled holiday plans

Being in another place usually allows people to open their senses and be completely present, rather than disengaging the senses and functioning on auto-pilot.²¹⁷ With travel abroad being restricted many people found creative ways to relax. Some people were repatriated, others failed to be, spending longer than planned abroad. This too, is an instance of Kairotic time if people seized the opportunity to do something new, to be reborn due to the crisis.

Dasein is a lot harder when you are worried about your financial situation, which is known to block long term thinking and keeps people locked in the negative past.

The practice of taking walks in the neighborhood increased social contact as neighbors ran into each other more often. Streets became social spaces in which time took on the form of human exchange rather than a transport function. Children played outside more often and used chalk to brighten up public space. At the same time the estranging distance between people and the wearing of mouth masks did not make for public space to be inviting for worryless conversation. Many people evaded crowds and were vigilant not to stand in the way.

²¹⁶ M. Lange, Theatermaker Marjolijn van Heemstra dicht ter relativering: 'We zijn gewoon niet belangrijk', Het Parool, 07 October 2020, <https://www.parool.nl/kunst-media/theatermaker-marjolijn-van-heemstra-dicht-ter-relativering-we-zijn-gewoon-niet-belangrijk~b83056ed/>

²¹⁷ When the king of the Netherlands flew to Greece for a private holiday it caused great outrage. The government had just dissuaded citizens from traveling to the country. The king's error of judgement is a typical example of not falling together with the time. I couldn't blame him for wanting to go. Greece is a country where life's tempo is much in line with duration.



Nynke Rixt-Jukema designed this 'bench of the new reality' which elicited mixed response. Keeping 1.5 meters distance should not be the new reality was an often heard remark on internet fora. Users of the bench were much more positive²¹⁸. This demonstrates how the fast culture of digital media produces rapid judgement based on images, rather than of other senses

²¹⁸ N. Rixt-Jukema "Architect and darkness activist", [interview], 23 June 2020

5.7 The effect of COVID-19 on the time regime as a whole

It is difficult to conclude in what way the COVID-19 Pandemic will have on our time experience in the long run, but its immediate effects have been profound. Many people experienced ‘oceans of time’ because of canceled events, others were pressed and rushed because of pressing health threats or losing access to food and housing. Clock time maintained a dominant position as people largely held onto habits and ways of doing. One year into the crisis, many processes are back at previous levels and the initial shock has faded. Many people found new occupations and learned new skills and hobbies, most were suffering from a lack of social contact and economic malaise.

In line with Jaap Goudsblom’s theory on the time regimes, civilizations became more alike (converging), as medical advice to regularly wash hands, wear mouth masks, keep distance and limit personal movement were universally adopted. But civilization also became more diverse (diverging) as counter cultures and unique responses to the virus were taken, depending on region and culture. Borders were closed down, causing more autonomy and less globalism, but digital communication proliferated, through laptops and smartphones being more widely distributed and create greater dependencies. It was an exciting period during which many new things took place while at the same time being an underwhelming period of lockdowns and little new.

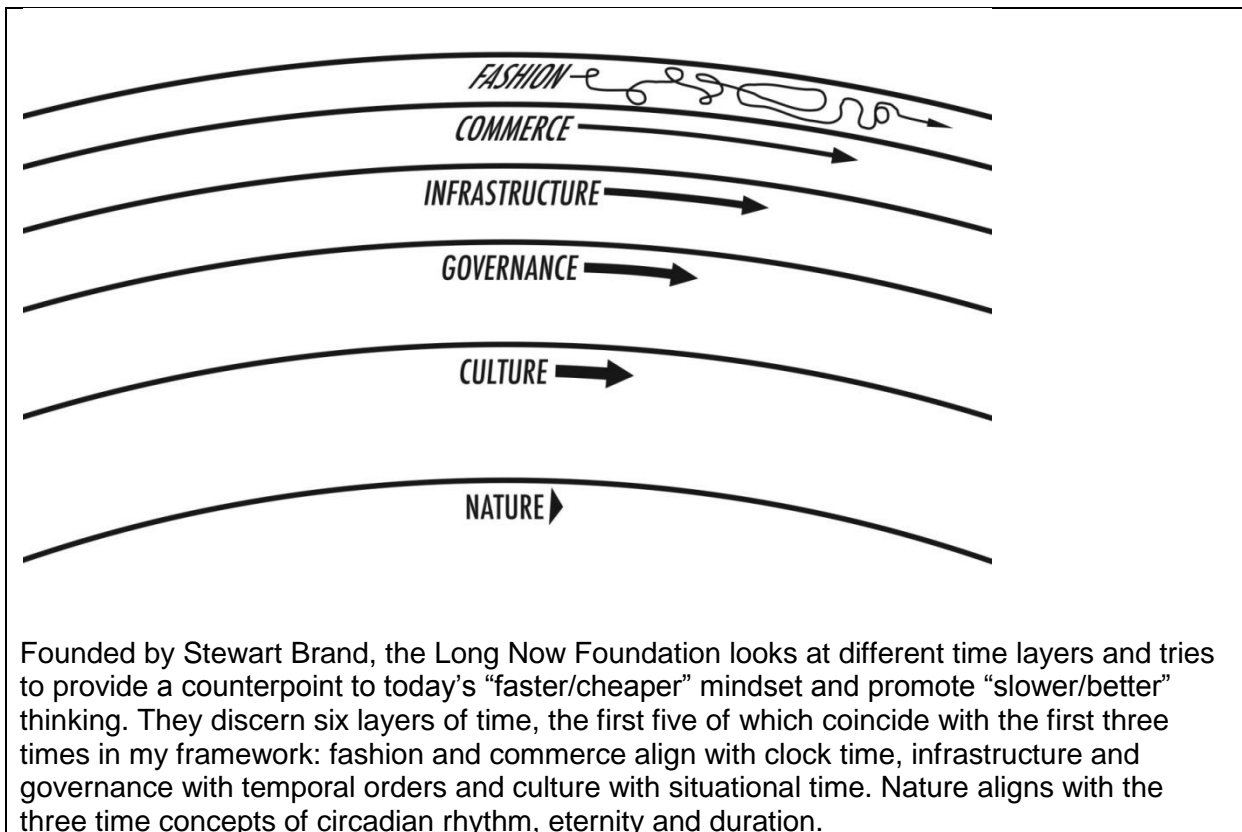
Table 11: Summary of the effects of the COVID-19 pandemic on separate time concepts

Type of time	Increased presence	Reduced presence
Clocktime	Quantitative reflex Rising stock market	Health prioritized over efficiency Lack of work rhythm
Temporal order	Reconnecting networks Negotiation of public space Massive rescheduling	Less movement = less connection
Situational time	New Zeitgeist Value driven response to virus Differences in age, class, health	Global dealing with crisis
Circadian rhythm	Resurgence of nature Increased natural stimuli	Extended screen time Sleeping problems
Eternity	Contemplating purpose Deaths demonstrate finite life	Long term thinking pushed aside Practicing religion at a distance
Duration	More time for play New pastimes	Heightened stress Canceled experiences

Looking at the separate time concepts, temporal order and situational time seem to have been more at play than before, while the other four time concepts knew reduced and increased presence. Perhaps increases and decreases of time concepts are too much of a quantitative framing of time. The next chapter makes use of a qualitative approach and restores the balance. It lists numerous interventions proposed by activists, artists and researchers. This chapter will provide concrete examples of how cities can be designed with time-diversity in the back of our minds.

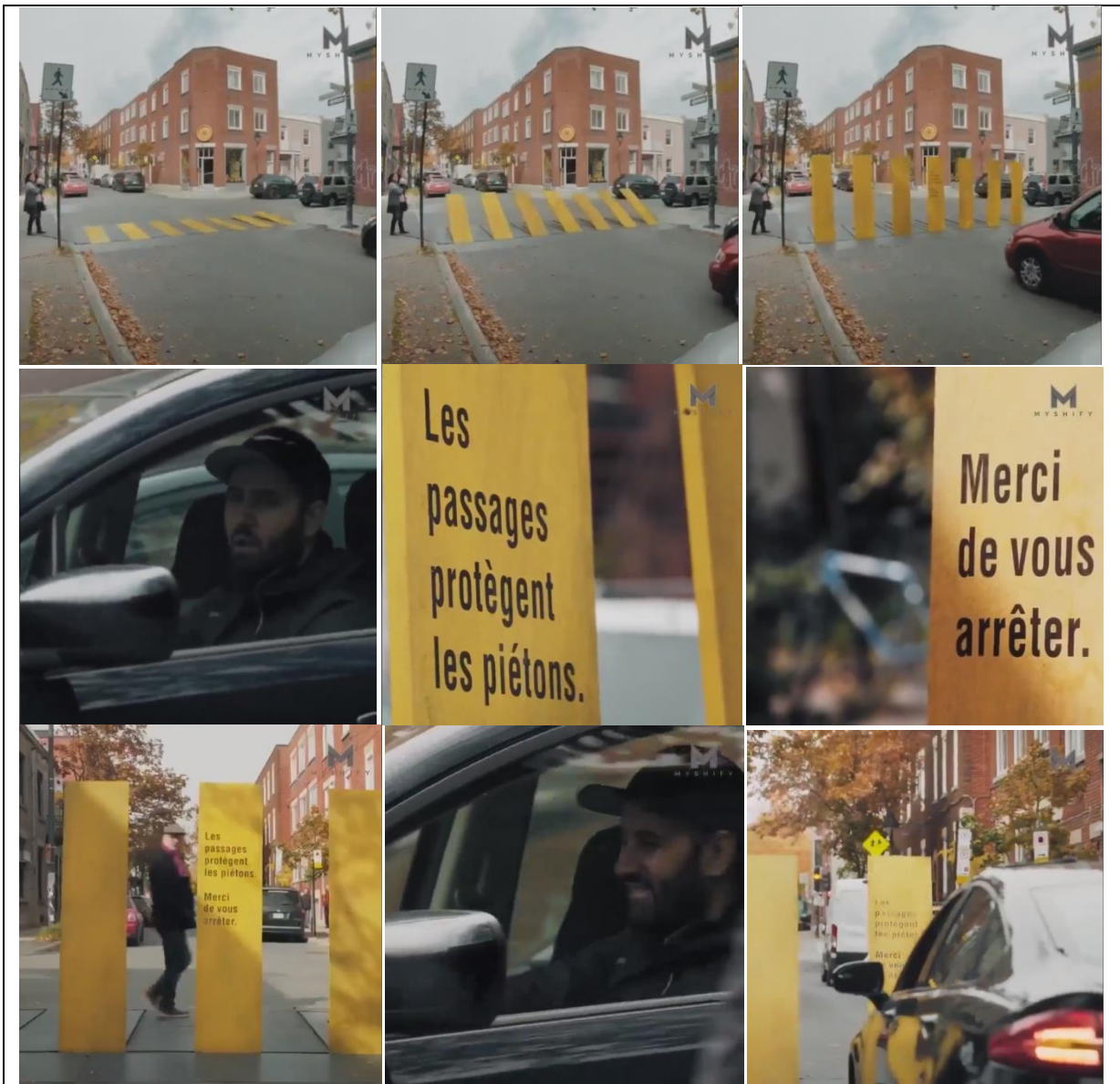


Anish Kapoor's cloud gate bends the straight lines of the surrounding buildings and lets the sky flow into the earth. Curved objects are more in line with time as duration, eternity and natural time, the category that I describe as cyclical / regenerative time.



Founded by Stewart Brand, the Long Now Foundation looks at different time layers and tries to provide a counterpoint to today's "faster/cheaper" mindset and promote "slower/better" thinking. They discern six layers of time, the first five of which coincide with the first three times in my framework: fashion and commerce align with clock time, infrastructure and governance with temporal orders and culture with situational time. Nature aligns with the three time concepts of circadian rhythm, eternity and duration.

“You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete.” — Buckminster Fuller



This retractable crosswalk in Montreal served as an awareness campaign for motorists to yield to pedestrians. Though well-intended, innovating a crosswalk still enhances car logic. What if streets were not segmented into pavement and tarmac? What if pedestrians and drivers would both be labeled humans, rather than road-users? Protesting clock time by smashing clocks or magnifying them still legitimizes the clock time regime. To move away from the current system requires new ideas and new logic. Innovation that truly helps us forward comes from a different state of mind. In fact, most revolutions take place unnoticed, and the mechanisms according to which they work are only understood in retrospect. The next chapter examines several such innovations and distills benefits from each one. With the benefits a tool is crafted with which more mixed temporal realities can be created. The plus side of the awareness campaign in Montreal is that it challenges the spectators' expectation and produces a smile on the face of participants, it is inclusive rather than mutually exclusive.

6: How art, activism and research change temporal reality

The physical world we design, comes forth from our understanding of the world. To change our designs then, involves changing our awareness, which can be done through words, images and practice. The following chapter summarizes the interviews of with artists, activists and researchers who are ahead of the times as they signal a new dealing with time and light. Inspiration was also drawn from literature, news broadcasts and conversations I had during this writing process.

Imagine an urban planner designing a city of the future. Usual design parameters would be quantified and based on clock time. Targeted number of residents and companies, house and plot prices, building costs per standard unit, square meters dedicated to public green and blue, ratio's between private and public space, number of parking spots et cetera. Now imagine the design process makes use of alternative time concepts that change the parameters themselves? What if t transcended project delivery calculations and profitability margins? The district would end up as completely different world that serves wholly different (qualitative) citizen needs.

Taking duration as the point of departure would put live experience at the heart of the design (for instance with rough playgrounds, street musicians and livingroom concerts). Eternity would promote storytelling and integrate symbols from the deep subconscious in the landscape that have to do with fertility and abundance. Circadian rhythm would reduce artificial lighting, maximize sun exposure and safeguard twilight hours and views of the galaxy. Situational time would stimulate exchange of services and knowledge between generations and cultures with differing values and tempo's. Time as a temporal order would stress the constantly changing relations between neighbors, shop owners, recreationists and visitors and establish rules to provide clarity. Clock time would make sure all planned processes and activities are met within a time frame that chops whole projects into specialized and manageable tasks.

Of course none of these realities can be separate, each of the six time concepts are present in any city we observe because they are human concepts. Being aware of what time concepts are present and which are not enables us to enrich a public or mental space by adding time concept elements as we like. This last chapter briefly explores possibilities for tweaking the time regime as proposed by artists, activists and researchers. It is concluded with images of protests, interventions and places to make the time concepts more concrete.

6.1 Clock time: counting in a non-performance way

Maximizing what you get out of a day is not a bad thing

Joke Meijer describes how the debate around workload often results in the conclusion that we need to work less. She counters it by saying people are not very active these days. As manual labor is in decline, we sit behind screens at work and spend many hours in front of the television at home. She argues the space we need is in our heads: if one feels hurried to do a task one doesn't complete the task sooner, it makes more sense to just do the task without worrying.

In the book *Kairos*, Joke Hermsen lists several initiatives that maintain quantified transactions at their basis but include social considerations as well: time banks, social enterprises, the share economy and fair-and-local-trade.²¹⁹ Another concept is the 15-hour workweek. Predicted by Keynes in 1930 as the result of automation processes, the world was on track to gain more leisure time but this process has stalled since the 1970's, in fact, the average worktime per person has increased again since the 1980's.²²⁰

²¹⁹ J. Hermsen, *Kairos, een nieuwe bevingenheid*, Arbeiderspers, Amsterdam/Antwerpen/Utrecht, 02014, p. 283-291

²²⁰ R. Bregman, *Gratis geld voor iedereen: over het basisinkomen, de 15-urige werkweek en een wereld zonder grenzen*, De Correspondent, 2016

6.2 Temporal orders: public space as a common

To protest the monofunctional space Foivi Psevdou organized a performance on Syntagma square. This is a square in front of the Greek parliament, a boring place that is swept clean by riot police in case of violent protests, there is nothing much except for benches and a metro station, nobody stays in this place, everybody is going. Foivi contrasts the rhythm of going by walking hyper slowly, each step lasting around thirty seconds. An effort to reclaim public space and an effort to promote the rhythm of the body, rather than that of normative environments like cars or work.

In 'The right of the fastest' Thalia Verkade describes the joy of recognizing car logic and having scales fall off her eyes.²²¹ For instance by finding out that the first traffic engineers in the United States were former plumbers, therefore they are concerned with ensuring unblocked circulation and pressure, rather than seeing traffic as a social interaction.²²² Reversing the logic can be a fun but also serious activity. On the website <https://nl.thecrashes.org/> she monitors the way accidents are reported on by media, with the majority of headlines reading that cars were involved in crashes, rather than humans. Marco te Brömmelstoet adds that if the radio news stations would report the stories behind the people that died, rather than traffic jams, the perception of traffic is already made more human.²²³

In 'From what is to what if' Rob Hopkins describes how living streets can be organized through social organizing and imagination. The first step is an exercise in which a group of citizens cross an imagined line from the present to the future with their eyes closed. They are asked what they feel, hear, taste and smell. They are free to shout whatever comes to mind. The fact that they disable one sense makes possible all the other senses. The suggestions lay the basis for a transition plan that makes a village more livable and which is then negotiated with the local municipality.²²⁴

²²¹ M. Te Brömmelstoet en M. Verkade, *Het recht van de snelste*, De Correspondent, Amsterdam, 02020

²²² Ibid. p.87

²²³ Ibid. p.50

²²⁴ R. Hopkins, *From What is to What If*, Chelsea Green Publishing, London, 02019, p.108-110

6.3 Situational time: cultural diversity

Non-European dealings with time

An inventory was made of dealings with time around the world. Interviewees came up with the following concepts: Joke Hermsen described the Confucian concept of Wu-Wei which means 'doing nothing'. It is usually formulated as a riddle saying 'nothing is doing nothing' meaning that everything is acting just to be. Dao-teachings prescribe leaving everything behind before treading on the path to enlightenment.²²⁵ Marjolijn van Heemstra recalls how Moroccan women reported being 18 or 22 months pregnant with a child. When she asked how this was possible they responded that they don't have the concept of miscarriage, the same soul is born into the world, just with a little postponement.²²⁶

Foivi Pseudou mentions Japanese clocks that indicate shorter hours as the length of the day recedes and expands during summer and winter time. In the film *Ascent* by Fiona Tan the Japanese dealing with time is described as the falling of the cherry blossom. It is not the bloom that is important but the falling, since descending down on earth gives new life.²²⁷

Dorine van Norren researched whether the sustainable development goals fit the cultural conceptions of development in three continents.²²⁸ She compared Buenvivir in Ecuador, Ubuntu in South Africa and Happiness in Bhutan. Buenvivir is about being together and having the time to enjoy the fruits of nature as well as a dignified life.²²⁹ Ubuntu could be translated as 'I am because we are'.²³⁰ According to Richard Stengel it is 'the profound sense that we are human only through the humanity of others that if we are to accomplish anything in the world, it will in equal measure be due to the work and achievements of others'.²³¹ It means that in collective gatherings, everyone should have the right to speak but also to follow the chief. Meetings can take entire days because it is important that everybody understands the decision that is taken.²³² In Bhutan, 'For Tsering' (long life) is the central concept for happiness. It revolves around living in simplicity and nonviolence, in accordance with the Buddhist eightfold path.²³³ 'If you are always on a fishing expedition for a better life, the surface of your spiritual ocean will never be calm'

Nynke Rixt-Jukema shares how Mongolian culture is about sharing. When arriving in a village everybody asks if somebody in the village needs to take you somewhere,

²²⁵ J. Hermsen "Philosopher, novelist and publicist", [interview], 02 July 02020

²²⁶ M. van Heemstra, Hoe leg je een kleuter uit wat nul betekent?, Trouw, 17 November 02018
<https://www.trouw.nl/nieuws/hoe-leg-je-een-kleuter-uit-wat-nul-betekent~b29aff39/>

²²⁷ F. Tan *Ascent*. 02016

²²⁸ D. van Norren, (2017). *Development as service: A happiness, ubuntu and buen vivir interdisciplinary view of the sustainable development goals*. Prisma Print.

²²⁹ Ibid. p.216

²³⁰ Ibid. p.165

²³¹ R. Stengel, *Mandela's Way: Lessons in Life*, London, Virgin Books, 2010.

²³² R. Van Es, *Professionele Ethiek*, Boom uitgevers Amsterdam, 02011

²³³ Ibid. p.260

sharing is much more important. Frisian culture also has a proverb, 'De tiid hâld gjin skoft' which translates to 'the time doesn't take pause'. Being farmer's daughter, for Nynke the expression relates to a past in which agrarians had a relationship with the land, as the land does not plough itself, it needs labor which is very much in line with the protestant work ethos.²³⁴

The emotional value of landscapes

French sociologist Pierre Nora uses the term *lieu de mémoire* to describe landscapes and locations that harbor community memories. It indicates how every location is made unique through human conduct. Architect Nynke Rixt-Jukema often researches history to make her designs fit the social context.²³⁵ One such example is Earnewâld, a former garbage patch of Leeuwarden municipality. Between 5 and 6 september 01942, a Lancaster bomber was shot down over Friesland and crashed on this location, killing all crew members. That night 11 other airplanes failed to return to England. Nynke designed a swallow hill at the length of the Lancaster bomber, closing 11 breeding nests symbolically at the opening in the presence of relatives of the victims. Monuments, artefacts and living memories in the form of installations bring the past back to life in the presentday world. Nynke Rixt-Jukema explains that next to ecological and economic value there should be attention for emotional value.

²³⁴ N. Rixt-Jukema "Architect and darkness activist", [interview], 23 June 2020

²³⁵ Ibid.

6.4 Circadian rhythm: light as a building block

Deeply engrained comfort in seeing fire

Jasmijn Schrofer describes how the human relation with fire is so old and so omnipresent that it is hard to erase, literally nothing around us has not been produced with the help of fire. Our society is addicted to fire though the production of fire itself has become increasingly invisible, even power plants, engines and gas will be replaced with electricity, but electricity too requires fire.²³⁶

Nynke Rixt-Jukema describes how calls for reducing public lighting are often met with fierce opposition, usually from men who think it is dangerous for women to be out in the dark.²³⁷ Traumatic events like murders create a long lasting image of unsafety in the dark, while most murders take place in a lit environment. Light sensors make it possible to keep light switched off when nobody is around. Darkness is a very emotional issue that needs a lot of town hall meetings before people are convinced of its benefits, in the beauty it brings, the costs it saves and the biodiversity it promotes.²³⁸

Mattheus Blijenberg notes how security guards prefer light sensors because with an awful lot of light there is an awful lot to check. The real danger comes not from the darkness but the detrimental effects of artificial light on human health. He suggests to refrain from the word light pollution and adopt light murder instead.²³⁹

Health hazards

The ecological consequences of superficial light are devastating. The mediteranean seaturtle is expected to go extinct as there are ractically no dark beaches left to nest on due to over-tourism,²⁴⁰ butterfly and insect populations have been decimated partly due to permanent twilight.²⁴¹ Migrating birds crash into sea after flying hours around the bright light of oil and gas platforms.²⁴² In humans as well as other animals exposure to artificial light suppresses the production of melatonin which acts to make us sleepy but also functions as an antioxidant, preventing errenous multiplication of cells that form into cancer.²⁴³ Being constantly 'on' and alert may explain the high levels of burnout and psychological disorder in Western society. It is a proven cause of obesity, depression, cardiac disease and insomnia.²⁴⁴ As artificial ligh increases at 2% per year these conditions are not expected to decrease. With some countries considering to adopt permanent summer time, more people will miss sunlight in the

²³⁶ J. Schrofer "Documentary filmmaker, director of 'The End of Darkness'", [interview] 30 June 02020

²³⁷ N. Rixt-Jukema "Architect and darkness activist", [interview], 23 June02020

²³⁸ Ibid.

²³⁹ M. Blijenberg "Communication advisor Natuur en Milieufederatie, project leader Nacht van de Nacht, and DJ", [interivew], 15 July 02020

²⁴⁰ Ibid.

²⁴¹ J. Meijer, "Professor neuropsychology at LUMC" [interview] 11 August 2020

²⁴² J. Schrofer "Documentary filmmaker, director of 'The End of Darkness'", [interview] 30 June 02020

²⁴³ R.G. Stevens, How the marvel of electric light became a global blight to health, AEON, 03 August 02018 <https://aeon.co/ideas/how-the-marvel-of-electric-light-became-a-global-blight-to-health>

²⁴⁴ J. Meijer, "Professor neuropsychology at LUMC" [interview] 11 August 2020

mornings and develop more diseases. Russia canceled experiments because the number of traffic accidents in the morning rose dramatically.²⁴⁵

International Dark Sky Association

To achieve clear skies at night, the dark sky association declares international dark sky parks and reserves around the world. Member municipalities and NGO's work together to achieve less superfluous illumination and protect dark sky sanctuaries, places without human habitation without any light at all.²⁴⁶ Astronomers warn that observations are increasingly interfered by light from the earth, but also from the sky. Private space technology companies launch thousands of satellites into orbits around the earth, where they block the view of telescopes. A famous example is Elon Musk's star link train, that is to provide high speed internet everywhere around the globe and grows longer each year.²⁴⁷ Retaining darkness seems not to be high on the agenda of world problems.

²⁴⁵ Ibid.

²⁴⁶ The end of Darkness [documentary] directed by J Schrofer, 02020

²⁴⁷ JVT, Daar komt de spectaculaire Starlink-trein van Elon Musk, De Standaard 20 April 02020
https://www.standaard.be/cnt/dmf20200420_04928049

6.5 Eternity: diving deep into the past

Celebration of life, sources of wisdom

Many celebrations in the world center around the circle of life. Each equinox is the symbol for a phase of the year and a phase of life, spring standing for blossom and adolescence, summer representing abundance and middle age, fall representing harvest and old age, winter representing rest and fertility as seedlings are waiting in the earth to sprout and new light is being born.²⁴⁸

Interventions that provide a city with eternity are water based since water carries memories. Water reminisces of the water carrying us as a child in the womb and is depicted as the principal source of life.²⁴⁹ One gets a completely different view of society when realizing how many civilizations existed before us, and how short of a time span our existence actually comprises.²⁵⁰ Memento Mori (remember that you have to die) would be a fitting expression that signifies eternity in public space.

Marjolijn van Heemstra remarks how beautiful the Dutch word 'verblijven' is.²⁵¹ It means to reside, denoting a temporary character, but it also contains the word 'blijven' which means to stay, presupposing a permanent position. Asked what the name for the new epoch should be, she responds: 'something that references the manifold of things going on. Life and technology is pretty overwhelming, don't you think?'.²⁵² To be humbled by greatness Marjolijn van Heemstra still has the plan to start a 'sterrenwacht' or night sky observatory in Amsterdam North. In an interview with a Dutch newspaper she underlines the importance of understanding how short humans have been around, and that our existence really does not matter much.²⁵³

The zero that brings perspective

Stewart Brand gained fame in 1966 when he started handing out buttons that read 'Why haven't we seen a picture of the whole earth yet?'. He called on NASA to release photo's from planet earth to the public. When this happened in 1968 it was a watershed in human awareness. A holistic view of the planet, and every single bit of history having taken place within it, had not been experienced before.

Four years before the new millennium, Brand founded the Long Now Foundation to foster long term thinking and responsibility for the next 10.000 years. The adoption of a five digit calendar aims to bring eternity into daily life. The 0 reminds people of all the years that are still to come, that we do not own history. The 0 provides a literal perspective of the future, and is the oval shape of our planet.

²⁴⁸ I. Bergman, *Godinnen van eigen bodem*, A3 Boeken, 02007

²⁴⁹ A. van der Meer, "Herstorian, esoterian and author" [interview] 23 July 02020

²⁵⁰ Ibid.

²⁵¹ M. van Heemstra "Theatre-maker, poet and author", [interview], 31 August 02020

²⁵² Ibid.

²⁵³ M. Lange, Theatermaker Marjolijn van Heemstra dicht ter relativering: 'We zijn gewoon niet belangrijk', Het Parool, 07 October 02020, <https://www.parool.nl/kunst-media/theatermaker-marjolijn-van-heemstra-dicht-ter-relativering-we-zijn-gewoon-niet-belangrijk~b83056ed/>

To give extra weight to the five digit calendar, Brand constructs a clock of a hundred feet tall in a mountain in Texas that runs for 10.000 years without human intervention. The clock is supposed to be a center for people to realize the depth of time. It is funded by Jeff Bezos, the billionaire who earns 2589 dollars a second,²⁵⁴ His company Amazon grew to gigantic proportions by eliminating breaks for workers and priming techniques to make consumers order as fast and as much as possible. If the clock of the long now can be called a modern megalith, it is equally built on forced labor.²⁵⁵

²⁵⁴ H. Hoffower, We did the math to calculate how much money Jeff Bezos makes in a year, month, week, day, hour, minute, and second, Business insider, 09 January 02019, <https://www.businessinsider.com/what-amazon-ceo-jeff-bezos-makes-every-day-hour-minute-2018-10?international=true&r=US&IR=T>

²⁵⁵ Think of mega structures like the Chinese wall or the Olympic Stadiums in the Arab Emirates. There is a reason why origin stories warn of those who fly to close to the sun or those that build too far in the sky.

6.6 Duration: full attention

Our attention is increasingly interrupted through endless advertisements and activities and the propagation of scarcity. This attention deficit caused by technology was criticized by Heidegger and is still relevant today. To be fully present requires simply to be²⁵⁶. Several artists propose solutions to this, such as Maarten Baas, who planted a forest that, once fully grown in 200 years, will spell out the letters NOW! as seen from an airplane. It is an accusation of mass consumption and pop art as commercial vehicle that legitimizes it.²⁵⁷

Working and craftsmanship

As a professor at a university of applied science, Nynke Rixt-Jukema noticed how students lack maker skills, they did not learn to use their hands or play outside and climb in trees.²⁵⁸ She argues for the reinstatement of crafts schools so people value products and their design. The Dutch lack a sense of makership as the share of agrarians and technicians on the workforce has dropped dramatically. Living on and with the land made people realize where they were coming from, that they are one with nature. Modern city life has separated people from this connection. Even modern agrarians don't have that sense anymore because the sector has been industrialized. If children learn to build and fix things with their bare hands, that sense of makership returns.²⁵⁹ She notes how she is usually not inspired by other architects but by artists from other professions, such as theater. 'You want to evoke, like a theatre director you take people by the hand from the moment they enter the building, they pass an arena, cross a threshold and they have to leave behind their belongings and dreams, they are now someone else in a different reality.'²⁶⁰

Gastro-tactile-silent cities

Taking time for communal dinners, creating long-lasting products and enjoying uninterrupted natural sounds seem ever more challenging activities in big cities. It is done at Mediamatic in Amsterdam, a digital art archive combined with a restaurant, greenhouse and foodlab. Researchers and chefs work together to create viruses and bacteria that affect the flavor of the dishes. Experimental dinner nights invite guests to attend naked, workshops are organized to create perfume with Amsterdam canal water. Such locations are innovation and inspiration heavens that put senses first.

Another intervention is to create wifi-free zones at bus stops, placing benches that can only be sat on together, or placing knitting machines on train platforms where people can knit their own scarf while they are 'in between' time. Any intervention that heightens the senses, creates spontaneous interaction or requires a bit of skill solidifies duration through the making of rich memories. Temporary events like outdoor live music and dance or city beaches let's us escape the teeth of time.

²⁵⁶ J. Hermsen "Philosopher, novelist and publicist", [interview], 02 July 02020

²⁵⁷ T. Lijster, *Kijken, proeven denken, essays over kunst kritiek en filosofie*, De Bezige Bij, Amsterdam 02019

²⁵⁸ N. Rixt-Jukema "Architect and darkness activist", [interview], 23 June 02020

²⁵⁹ Ibid.

²⁶⁰ Ibid.

Clock time



ADM community in Amsterdam functioned as a self-sustaining ecological mini-society. Instead of central sewers they filtered grey water on location, solar panels provided current. Food thrown away by supermarkets was saved and processed into soups and free meals. Cultural activities, poetry, storytelling and raves were organized, as well as Robodock, a cutting edge European festival for audiovisual, pyrotechnical and kinetic art. Freelance artists worked in line with the festival season or whenever they felt creative. Art communities and squats could be sustainable role models but they get rejected as informal settlements.



Local currencies like the Utrechtse euro or the Ithaca Hour are an effective ways to keep money in the community and ensure labor provides meaning and satisfaction. The Hague has a time bank where volunteers can provide hours and get massage or food in return.



At consultancy firm Proawareness employees decide their own salaries in full transparency. The model is inspired by Ricardo Semler who believes companies perform best when all the personell is happy (EenVandaag, 02018)At NGO ProVeg, CEO Veerle Vrindts earn the same salary of €2.482 per month as all other employees. They reason that all money donated to ProVeg should be based on idealism and directed at achieving targets, not self-enrichment. Such appreciation of work operates within the framework of quantified performance but leaves flexibility to reach environmental and emotional goals (Kils, 02020)



New York is the amalgam of different clock time principles. High land prices and high profits, high skyscrapers with gigantic clocks, high risk short term thinking and investing. Permanent illumination trying to elicit customers purchases in a 24/7 economy. Many metropolises around the world aim to be like New York. Can a city that never sleeps wake up thinking it made all the wrong decisions because of insomnia? Image from Wikimedia

Temporal orders



On the 10th of March 2020 Machiel Ouwerkerk staged a spontaneous protest by holding up a sign on Dutch national television reading: 'Where is the sign language interpreter for deaf people in times of crisis?'. The deaf community was disconnected at the start of the COVID-19 pandemic. Thanks to the action of Machiel they managed to be taken into account during subsequent press conferences. Temporal orders establish smooth collective understandings.



Digital detox, or to be disconnected on purpose, is gaining popularity as the problem of shorter attention spans become clearer.²⁶¹ Electronic devices are literally time-consuming. Parallel to Illich's calculation of real car speed, phone use leads to browsing, watching ads, buying, working more, being bored and doing more browsing.

²⁶¹ J. Hermsen, *Stil de Tijd, de Arbeiderspers*, Amsterdam/Antwerpen, 02009, p.208



The French city of Grenoble prohibited advertisement in public space. A fight that caused . Alex Montvernay tried to achieve the same result for Lyon but was arrested for 'damaging' the municipal office by collaging left-over advertisements on the windows (Brouwer, 02020).



France is a prime example of a country where temporal orders are negotiated constantly. It is not for nothing that France is now in the fifth republic since 01789 and the yellow vests took to the streets in 02018. The picture shows Paris on a carfree Sunday. Mayor Anne Hidalgo promotes the use of human powered transport and coined the term velopolitain to transition her city from car logic to bike logic. Photo by M Astar / Sipa / Rex Shutterstock

Situational time



Founded in 2016 by Tricia Hersey, the nap ministry organizes sleep-ins, where women claim back rest. They argue the capitalist system forces the bodies of minorities, especially African American women, to be productive. African Americans get 1 hour of sleep less than their white counterparts. The quality of the sleep is also less (Kroth, 2019)



The Norwegian island of Sommarøy is located above the arctic circle. During summer the sun does not set for 69 days. The bridge to the island is covered in watches since clock time does not make much sense, except when communicating with places more south.

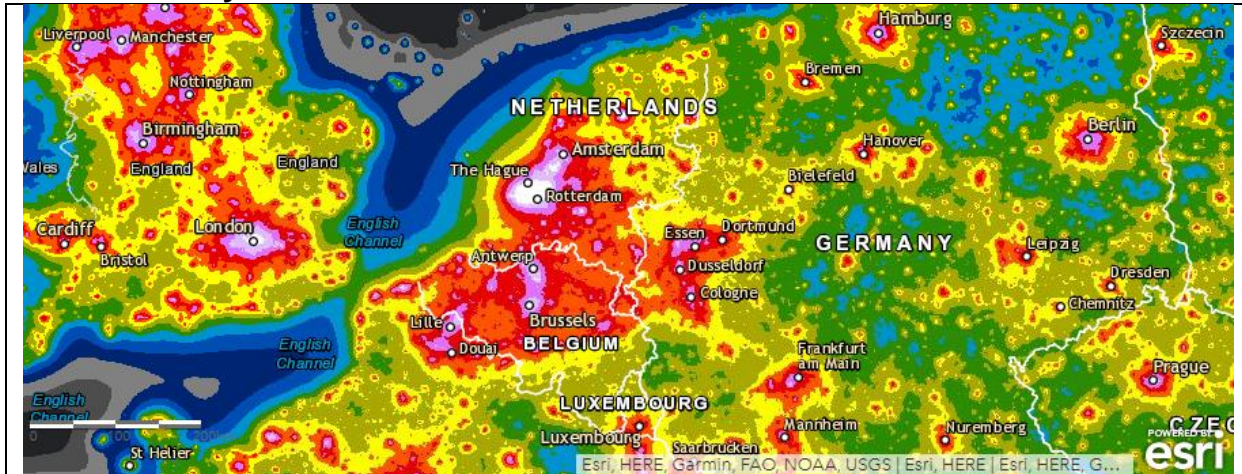


Mixed living arrangements such as courtyards with interior gardens and open galleries stimulate city residents to live in a community setting while still offering sufficient seclusion and privacy. Younger and older generations share life, get to know each other through neighborhood activities and exchange services by helping out with technology or babysitting. Photo by Anna Johanne.



Bhutan is exemplary of situational time. It distinguishes itself from the rest of the world by measuring gross domestic happiness of its citizens. Closed in between Tibet, India and China, it is a mix of cultures. The nickname of Bhutan is the country of the dragons. The wind carries the prayers on the flags to everywhere around the world, symbolizing unity.

Circadian rhythm



The Netherlands, Belgium and Puerto Rico (not on this map) are the most light polluted countries in the world, especially the greenhouse region Westland, the ports of Rotterdam and Antwerps and Amsterdam airport Schiphol / Brussels Airport Zaventem cause grave light pollution. This causes residents to catch less sleep, animal species to go extinct and more fatal traffic accidents. Generations of children are growing up without a view of the Milkyway (van Disch, 02002).



Architect Nynke Rixt-Jukema organized Feel the Night, a number of projects that aimed to let people experience the beauty of darkness and restore clear skies. In the short documentary Feel the Night she states that that in the way Eindhoven presents itself as the city of light, Friesland should promote itself as the province of darkness. Letting people experience the beauty of the night is a much stronger message than being anti-light. Processes of change always take three steps: awareness, experience and policy (van Heulen, 02018).

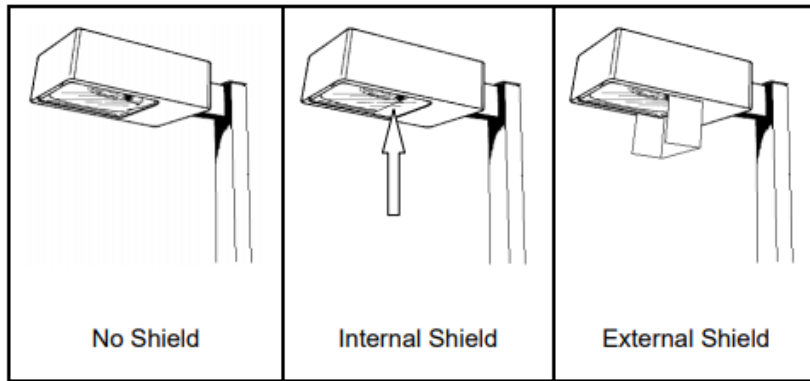


Figure C. Shielding Configurations

G. Motion Sensing Light Fixtures

Motion sensing light fixtures shall be fully shielded.

H. Time Limits for Outdoor Lighting

All outdoor Class 1 and Class 3 lighting, and outdoor Class 2 lighting located more than 50 feet from any building or outdoor product display or storage area shall be turned off at the times listed in Table D (Time Limits for Outdoor Lighting), or no later than 30 minutes after the business closes, whichever is later, and remain off for the remainder of the night or until the business reopens. Decorative holiday lights are exempt in accordance with Section 10-50.70.080.D, and outdoor recreation facilities are exempt in accordance with Section 10-50.70.060. B.

Table 10-50.70.050.D: Time Limits for Outdoor Lighting			
	Zone 1	Zone 2	Zone 3
Time limit when outdoor lights must be turned off	9:00 p.m.	11:00 p.m.	11:00 p.m.

Flagstaff, Arizona was the first international dark sky city. Above is an excerpt of the policy document on lighting. Designing a city with darkness promotes circadian rhythm, prevents diseases and accidents, saves resources, improves scenic views and restores wildlife species. It is a measure that saves money directly.



The Atacama desert in Chile has the clearest skies in the world and is the least light polluted spot on the planet. The Dark Sky Alliance aims to find more places to install these measures.

Eternity



Founded in May 02018, Extinction Rebellion organizes die-ins against irreversible climate change and mass extinction of species on planet earth, including humans. The symbol of the organization is an hourglass within a circle, signaling that time is running out for planet earth.



Triangle shapes represent male and female energy. The female triangle has the horizontal line at the top with lines going down, mirroring the mons Venus. The male triangle has the horizontal line on the bottom with lines standing up, mirroring the fallus. When the horizontal lines of the triangles are aligned they form a diamond shape that stands for fertility and reproduction. Two pyramids touching at the stand for disbalance or disharmony.



The overview effect is an experience astronauts have when observing earth from space. “In the words of Scott Carpenter: This planet is not terra firma. It is a delicate flower and it must be cared for. It's lonely. It's small. It's isolated, and there is no resupply. And we are mistreating it. Clearly, the highest loyalty we should have is not to our own country or our own religion or our hometown or even to ourselves. It should be to, number two, the family of man, and number one, the planet at large. This is our home, and this is all we've got.”



A country that fits the eternity concept is Ireland. It has a rich history of folklore and despite a patriarchal colonizer, knows many matriarchal stories that are still alive today, such as the queen and warrior Gráinne Mhaol (Broeren-Huitenga, 02020). Islands often retain a form of independence from the mainland and time is slower because the citizens seem passengers on the ship, rather than occupants. The cliffs of Ireland demonstrate magnificent caves and gates. The everlasting tide and waves arrive at the shore after million mile journeys, brought by steady currents. The mist that covers the meadows harbor mysterious gods and spirits from a far past, a calm and cyclical repetition of life.

Duration



Poetry has the quality to lift people out of their routine and transport them to other places. Eli Content, a Jewish painter, has stamped poems on white canvases to hang in the window sill of his house on the Weesperzijde for over thirty years. As the poems hang in the sunlight, the black ink fades to blue. When the time is ripe for a new poem, Eli stamps another. He states it is quite difficult to find poems that are short enough, especially since he never stamps the same poem twice.



Slacklines turn grass patches into a multi-sensory places where strangers meet each other, train their balance and have fun. Arcobatic installations in particular invite children to play, which in turn amuses the liberal parent and grand-parent Photo taken at Staringplein



The Cittaslow network was founded in Orvieto, in the south of Umbria. Cittaslow represents a counterculture that stimulates people to embrace slowness as a quality and started when the first McDonalds restaurant was opened in Italy. The Etrusk region is larded with remnants of a far past such as carved out labyrinths and statues of two-tailed mermaids, Etrusk society and language remains one of the greatest mysteries for historians to decipher.²⁶²



Folklore, communal singing and orthodox religion are still hold in Greek culture. It is at the faultline of Asian and European culture and therefore carries both clock time and duration.²⁶³ Greeks describe the past as being in front of them, because they have witnessed it with their eyes. The future one cannot see, therefore it is located behind us.²⁶⁴ The climate and history filled with conflict may explain the Greek tendency to leave time up to the body and meet at approximate time intervals.²⁶⁵ Was the Greek financial crisis rooted in a culture of living day to day or in Northern European creditors living in the future?

²⁶² J. Hermsen, *Stil de Tijd, de Arbeiderspers*, Amsterdam/Antwerpen, 02009, p.107-130

²⁶³ J. Hermsen "Philosopher, novelist and publicist", [interview], 02 July 02020

²⁶⁴ E. Genet., "Personal communications" [Interview] 06-12-2020

²⁶⁵ F. Psevduou "Performance artist and time researcher" [interview], 10 June 02020

6.7 Giving room to plenty

The two main ideas that clock time is based on and designed for is scarcity and a division between past, present and future. It is a choice to follow that logic, because we might equally reason that everything that has been still is and always will be. The art of designing a great city is to provide space to the concept of abundance.

Everything is already present, we just need to open our hearts and minds to them and share it because it can infinitely grow, just like the universe, so above, so below.

Table 12: Summary of interview findings

Type of time	Time regime alteration	Proposed terms
Clocktime	Counting in a non-performance way	Vocation, self-management
Temporal order	Public space as a common	Living passages
Situational time	Cultural diversity	Distribution of restedness
Circadian rhythm	Light as a building block	Scenic views, light murder
Eternity	Diving deep into the past	Waiting for the stars
Duration	Living with full attention	The long now, 'verblijven'

Table 13: Summary of time diverse practices and exemplary places

Type of time	Protest	Intervention	Country / city
Clocktime	Time banks	Living streets	New York City
Temporal order	Sign language	Advertisement ban	Grenoble, France
Situational time	Napping resistance	Courtyards, mixed living	Bhutan
Circadian rhythm	Dark sky association	Feel the night	Friesland / Chile
Eternity	Extinction Rebellion	Observatories	Ireland
Duration	Cittaslow	Long now	Orvieto / Greece

The time diversity framework can be used in multiple ways: as an aid in any design process. As a sounding board for communities who experience problems and the problem managers to find out if the problem is rooted in time. Or as the basis for co-creation processes that caters to the unique needs of citizens in diverse places.

1. Participants map all the forms and shapes in which time concepts are present.
2. The desired qualities and functions of the space or activity are listed in a morphological map; for instance rest, play, freedom, connection and beauty as functions and a solutions that is most needed in that specific location, for instance a clean environment, resource preservation, cost saving, autarky.
3. The morphological map is filled in with interventions that promote the lacking time concepts. This could be craftsmanship for duration. Adding puzzles, curves and spirals for eternity. Views of the galaxy and and hallucinatic effects for circadian rhythm. Intergenerational contact and slow travel for situational time. Declaring children as the rulers of the city for a day for temporal orders. Or negotiating and deciding salaries in a transparent way for clock time.
4. The macro transition is broken down into meso and micro actions.
5. A time frame is agreed within which the transition should take place
6. The process is repeated with different people so that other time concepts may come up and more people become aware of time diversity. Alternatively, single time concepts may be studied in smaller groups or multiple sessions.

The following song by Spinvis tells the story of a friend reminiscing a couple. It has at least 51 references to time, all six time concepts are represented. The power of art is that it can immerse the audience into an experience that leaves room for interpretation, making it unique and worthwhile in countless ways. I recommend listening to the song (without counting!) here: <https://www.youtube.com/watch?v=nPIRhwu4yow> or here: <https://open.spotify.com/track/4KfRoEtvEKBxYIKRe70N4z?si=tJ11igHVRryzt78t1TsUlw>

We werden ouder op het stille veld
 We waren mager als het ochtendlicht
 We lazzen zwijgend in elkaars gezicht
 Hoe iedere dag zich weeropnieuw voltrok
 De echte wereld was een verre ster
 Het dorp te klein en de zee te ver
 Bij nader inzien, altijdachteraf
 Hadden we alle tijd
 Vergaten alle tijd
Alle tijd

We grew older on the quiet field
 We were lean like morninglight
 We silently read in other's face
 How every dayfilled up again
 The real world was a far-away star
 The village too small and the sea too far
Looking back, alwaysin retrospect
 We had all the time
 Lost track of all the time
All the time

Van ons werd verder niks verwacht
 We doken van de steigers in de nacht
 Er zat een diepe waarheid in de domste grap
 Er was altijd wat en op het stille veld
 Stonden Stefan en Lisette
 Zoals ze altijd op foto's staan
 Zo wit en stil en achteraan
 Alsof ze alles al
 Alsof toen alles al
 Alsof we alles al

Nobody expected anything from us
 We dove off the piers in the night
 There was deep truth in the stupidest joke
 It was always game and on the silent field
 Stood Stefan and Lisette,
 Like they always stand in pictures
 So bleak and quiet and in the back
 As if they everything yet
 As if then everything yet
 As if we everything yet

Stefan en Lisette
Altijd samen maar niet echt een stel
 Zo'n soort liefde kon niet echt bestaan
 Hij dronk te veel en zij was veel te fel
 Alles wat ik weet
 Zoals hij haar dan soms lachen deed
 Kon niemand iemand anders ooit
 Want ze begrepen elkaar
 En ze deelden elkaar
 En wij keken ernaar

Stefan and Lisette
Always together but not really a couple
 A kind of love that couldn't really exist
 He over drank and she was way too fierce
 All that I know
 The way he made her smile sometimes
 Nobody else ever could
 Because they understood each other
 And they shared each other
 And we witnessed it

Hij was een rare, hij was nogal lui
 Ze was een weegschaal en was nogal mooi
 Ze had een racefiets en een tik en een schipperspet
 Wie was er eigenlijk niet verliefd nou toen op Lisette
 Stefan schreef een boek
 Maar dat hebben we eigenlijk nooit geloofd
 Hij las Bukowski en een vroege Proust
 Hij rookte Chesterfields
 Hij citeerde Marx
 Hij droeg zwarte Clarks

He was a weird one, he was rather lazy
 She was libra and was really beautiful
 She had a racing bike, tick and a skipper hat
 Who wasn't in love back then with Lisette?
 Stefan wrote a book
 But we never really believed that
 He read Bukowski and an early Proust
 He smoked Chesterfields
 He cited Marx
 He wore black Clarks

Rosalie ging trouwen
 Roel en Bas gingen studeren in een andere stad
 Toen Lisette ook ging en nog een paar
 Ben ik verhuisd in Juni, later ook dat jaar
 Het regende maar door
 Maar de herfst zou later prachtig zijn
 En Stefan bleef maar waar hij was

Rosalie was getting married
 Roel and Bas went studying in another town
 When Lisette went too and yet another few
 I moved in June, later that same year
 It rained on and on
 But fall would be brilliant later on
 Stefan just stayed where he was

Met zijn demo's
En met zijn basgitaar
En zijn boekenkast

With his demo's
And with his bass guitar
And his bookcase

De wereld werd een ander land
Ik verloor toen iedereen een beetje uit het oog
Stefan werkte bij een krant voor een tijdje
Toen was er dacht ik iets aan de hand met een meisje
Het leven van Lisette
Was toen al tamelijk veel en toen al aardig verward
En toen ook altijd een gebroken hart
Van weer een andere man
En weer een andere man
En weer een andere man

The world became another land
I lost track mostly of everybody
Stefan worked for a newspaper for a while
I thought there was something with a girl
The life of Lisette
Then was pretty much and considerably fuzzy
And then also always a broken heart
From yet another man
And yet another man
And yet another man

Oké oké oké er is soep
Zei Stefan op een avond in april
Stond ze daar weer op de stoep
Ze konden echt niet koken
Maar het ging voor de rest best goed
Met kerstmis waren we er allemaal
Haar bed stond in de keuken
En het was gewoon zoals het was
Hij had een kerstpakket
Ze had zijn kleren aan
We zongen Hold The Line

Okay okay okay there is soup
Said Stefan on an evening in April
There she was back on his doorstep
They really couldn't cook
But for the rest it went pretty good
With Christmas we were all there
Her bed stood in the kitchen
And it was just as it was
He had a Christmas package
She was wearing his clothes
We sang Hold the Line

Ze zeggen dat een ziel soms verdwaald
Ze zeggen dat het s'middags had gesneeuwd
In de bomen hing een lage mist
Toen alles om haar heen zich van een naam ontdeed
Alles wat ik weet
Zoals hij haar dansoms lachen deed
Kon toen niemand iemand anders nog
En de zomer kwam
En de zomer ging
En de winter ging

They say a soul sometimes loses track
They say that it had snowed that afternoon
In the trees hung a dense mist
When all around her disposed of its name
All that I know
The way he then made her smile sometimes
Then nobody everelse could still
And the summer came
And the summer went
And the winter went

Voorbij, voorbij, voorbij
Ze zaten in de auto van z'n broer
Het had geregend of waarschijnlijk iets dan op de weg
Maar Stefan remde niet
Dat is wat de buurman zegt
God weet hoe, maar het ging heel erg hard
Ik wist het zelf ook niet, ik hoorde het later pas
Bij nader inzien althans achteraf
Ze begrepen elkaar
En ze deelden elkaar
En wij keken ernaar

Passed by, passed by, passed by
They were seated in the car of his brother
It rained or probably something on the road
But Stefan didn't break,
That's what the neighbor said
God knows how, but it went super fast
I myself didn't know, I learned only later
Looking back, always in retrospect
They understood each other
And they shared each other
And we witnessed it

We werden ouder op het stille veld
We waren mager als het ochtendlicht
We lazen zwijgend in elkaars gezicht
Hoe iedere dag zich weer opnieuw voltrok

We grew older on the quiet field
We were lean like morning light
Silently we read in each other's face
How every day filled up again

Stefan and Lisette, song by Spinvis (02017) Excelsior Recordings

7: Conclusion and future research agenda

Debates around time are often reduced to the factor speed and the dichotomy of faster versus slower. It is more useful to study time as a versatile phenomenon that comes in many forms and shapes that each contains enormous richness. Each concept brings words, practices, values, beliefs and logics from worlds that usually don't interact. It is therefore valuable to craft a multi-disciplinary framework.

Cataloguing symbols, verbs and expressions makes it easy to recognize, understand and experience time concepts. The framework aids designers in arranging spaces and processes beyond function and efficiency as propagated by clock time. Results from such design processes should lead to better health, preservation of resources and improved social conditions because they address root causes of problems rather than fighting symptoms. Time diversity addresses the true needs of all citizens.

Clock time dominance is not the result of a straightforward succession of inventions but a product of complex social circumstances that did not take place chronologically and were determined by chance as much as intent. Calendars co-developed with religious and economic structures, aided by mass migration events and trade relations. Kings, queens and other rulers imposing rules with regards to time to legitimize their rule. Tower bells served religious and later economic institutions. Clocks spread over the world as they provided comparative advantage in organizing society more efficiently. The enlightenment period gave rise to dualist thought, separating natural from social science, sacral from numerical and male from female energy. Industrialization and pocket watches made clock time more pervasive but measurement was not synchronous. The railroads, Taylorism and Greenwich Mean Time gave rise to standardized time. Efficiency was maximized to increase profits, aided by further scientific and labor specialization. This trend continues to this day, with more exact measuring tools and higher computing speeds expressing human progress in numbers, rather than in humanity.

At least six time concepts can be differentiated: clock time, temporal orders, situational time, circadian rhythm, eternity and duration. Clock time is based on quantified performance, dividing time into even projected intervals. Temporal orders are standardized agreements that synchronize and connect activity. Situational time are values, ideas and habits that prevail in a local context, or specific class, cohort or culture of the population. Circadian rhythm is biological activity caused by stimuli such as light and drugs. Eternity is the combination of past present and future in one circle that brings forth life, that can be observed in the cosmos. Duration is the quality of being one with time, monumental moments in which heightened senses expand or contract the experience of time. The former three time concepts are nurtured and numerical, the latter three time concepts exist separate from social conventions.

The COVID-19 pandemic affected the time regime in many ways. Clock time was pervasive in the fast response to the virus and a tendency to understand it through numbers, rather than qualitative social behavioral study. Economic efficiency became

less dominant as public health superseded economic interests in Europe. Temporal orders shifted the most, with new ways of communication and different ordering of school and work resulting in changed schedules and daily patterns. Situational time shifted dramatically too, with the crisis possibly sparking a new Zeitgeist that puts locality above internationalism. Differences in financial strength between countries, patriarchal patterns in cultures, access to space and open air between classes and risks of dying between generations, lead to vastly perceptions of time during the pandemic. Circadian rhythm was altered through the increased exposure to screens, though light and noise pollution dropped significantly during the initial phases of the crisis. Reduced body movement, financial worries and the adoption of plants and animals that are active at different time scales lead to worse and better sleep. Eternity was experienced through the presence of life and death, a hope that humanity would learn from the crisis to take on challenges together and a heightened awareness that we are connected to nature and not separated from it. Long term thinking was absent as direct emergency measures and financial aid were given, though many shifted to meaningful professions and pondered about their purpose in life. Duration was put under pressure as stress increased. Activities became more audiovisual and less gastro-tactile-scent, the qualities needed to capture memories. The momentary pause did inspire a lot of new and creative economic endeavors and pastimes that immersed people in projects.

Time diversity can be embedded in practice through various design interventions, both social and physical in nature. From the realm of clock time comes the idea of time currencies, codecision of financial rewards, training time planning skills and the 15-hour workweek. Temporal orders can be changed by reversing logics, making public space more multifunctional and communication processes more inclusive. Situational time can be respected by distributing rest evenly through the napping ministry, allowing for regional differences in time zones and letting cultural customs decide what tempo of life is strived for with room for multiple generations. Circadian rhythm can be honored by tackling light pollution with specific policies and calling sky glow 'light murder'. Eternity can be admired by visiting observatories, zooming out on our planet and taking part in ancient rituals and folkloristic storytelling. Duration can be induced by facilitating moments and memories of sport, music, gastronomy, scent, and art in the city and ensuring people can take time for each other and themselves.

My recommendations to further research on time experience are: 1) study the extent to which classical time concepts are represented in primary education and whether classes in philosophy could give children a broader understanding of time than clock time 2) determine to what extent cultural contexts are disappearing and develop an approach similar to biodiversity to protect niche timotopes 3) take more time to verify the findings presented and organize a seminar 4) find another context to which the time diversity framework can be applied 5) test the framework by organizing an excursion with architecture students and ask them for designs per concept 6) conduct research on the connection between music, sports, dreams, sex and estheticism.



Still from Frozen II (2019) directed by Chris Buck and Jennifer Lee. Walt Disney Animation Studios. The movie features ice and water containing memory, a scientific fact that explains how the human brain transfers experiences from old cells to new cells. The musical genre unites many different time concepts. From actors who have to sing at minute timing, choirs establishing a temporary harmony, to multiple generations being entertained by the story that represents the culture of that time. Circadian rhythm is experienced when the lights go out and some spectators fall asleep so their body catches up with needed rest, eternity is at play when the age-old drama structures and the storyline activate images or symbols from the collective subconscious, scenes with profound euphoria or sadness can stick with people like memories for the rest of their lives, activated when listening to the sound track once more.

Life is all about you and not at all about you
 Now, that's two opposing thoughts and yet both of them are true
 How can you experience everything you choose to do
 While observing the experience you're having from a higher view
 See, it's the question, not the answer, that's the higher view
 Otherwise, you couldn't differentiate between the two
 Awareness? But of who?
 You think you hurt me, but I promise I was letting you
 They say we're all one, but where have we been headed to
 I'd rather die free than have to live inside a petting zoo
 I am the journey that I'm getting to
 Gratitude is my destination
 My destiny is perfectly aligned with this location
 I am the map, so I travel back in time
 I have everything I want cause my imagination is mine
 But mind is not enough for me cause I am not my mind
 I could see it all, but never get to see I'm truly blind
 I could be it all, but all identities intertwine
 The moon is only bright cause it reflects the sun's shine
 It's not the human race, it's just the human race
 There's nothing left to chase, we do not run this place
 But both medicine and poison's an acquired taste
 So I started taking selfies of somebody else's face
 Tell me something
 What is more genius than a child's laughter. Are we not simply the children of this world?
 Spoken word by Adam Schmalholz, music by Steven Zhu, Georgia Nott and Caleb Nott

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