4

Early and more recent history

"*Technological progress offers us more efficient ways to turn back the clock.*"
Aldous Huxley.

"*When the peaks of our sky come together, my house will have a roof.*"
Paul Eluard

In particular, since the beginning of the 20th century, a wide variety of architects/artists envisioned a society that was often situated in a synthesis of architecture, media, and art; sometimes – usually years or decades later – considered utopian. These projects were primarily thinking projects; i.e., a creative rethinking of what the (spatial/architectural) consequences could or should be in times of social and technological innovation and development. In Anthony Vidler's phrasing, it often was "Vagabond Architecture"; some were close to reality and some were, in fact, utopian but more often also clairvoyant when it was built upon or structured around technological innovations. We can conclude that, besides some stand-alone art projects, these ideas almost never became a reality for various explainable or legitimate reasons. Nevertheless, many projects are still subject of research and education at, e.g., architectural schools since they incorporate the origins of doubt; i.e., the free thinking of the social (built) environment and its translation into architecture. It is – again – this rethinking that, in my view, is inescapable today since many other options to translate actual problems into fundamental solutions and innovation into practice seem inadequate or insufficient. I will concisely mention here, for this publication, the most relevant ones over the last 100 years in chronological order and related to housing since various other writers/researchers have discussed in-depth projects both

individually or as a coherent group. On some, however, I will elaborate further later on since they then touch(ed) upon developments that by now have – or could — become a reality.

The early projects

The emphasis as well as the similarities here originate to a large extent not primarily in the fact that they were new or innovative as such; the value is in the fact that the majority was thought from a much broader perspective, one that did not only derive from architectural principles but also joined with social and/or its philosophical rethinking. It also implied that various projects were ahead of their time and often considered utopian. Having said this, it remains noteworthy, however, that in particular those projects dealing with housing regain(ed) their value after many decades.

It is 1915 when Le Corbusier designs his "Maison Dom-Ino," an early attempt to solve the housing problems in a systemic/industrial way. His solution was a transparent frame – three floors, six columns, and stairs — produced industrially, leaving open as much space as possible for a personalized "infill." In 1925, Austrian Frederick Kiesler realized "Space-House," again primarily more of a structure than a real "house." Kiesler made a difference between the "Idea of a house" and one from a "unified architectural dogma"; his point-of-leave was the latter, indicating that it should be defined as "Time-Space-Architecture"[1]. Around 1920, again Le Corbusier designed the Union Habitation/Ville Radieuse in France, a community building raised from ground level with extensive communal spaces including a spacious roof terrace. It was designed in close cooperation with Charlotte Perriand who created (parts of) the interiors; it still is an example of functionality in housing.

After the Russian constructionist Georgii Krutikov, in 1927, envisioned his "Flying City" drifting above earth, a year later, a more practically oriented Richard Buckminster Fuller completed his "4-D/Dymaxion House," a half-dome (and various rectangular alternatives) constructed on the basis of an independent steel structure that already then included the means to, e.g., reuse water for sanitary purposes. More important — and above all actual — here though, as Robert Marks notes: "*Fuller holds privacy to be a condition that can be*

[1] Kiesler, F. (1996). *Selected Writings*. (G. Gohr, S & Luyken, Ed.). Gerd Hatje.

violated only through the sensorial spectrum. (..) the range of the harmonic capabilities of the house should be comprehensive with respect to the spontaneous articulation of all the senses of the dweller"[2].

It is 1924 when Mrs. Truus Schröder-Schräder asks the Dutch furniture-designer Gerrit Rietveld to design a house for her and her three children. Being adamant about her preferences and desires, she demanded a house that would be simple and functional; for Rietveld, it was his first house and it fitted entirely the ideas of "de Stijl" Movement. With its adaptable floor plan by means of sliding walls, it became – and still is — an icon of modern architecture.

When the Czech Karel Teige created his "Minimum Dwelling" in 1932, in an attempt to solve the shortage in housing, he tried to answer the need for every human being to have some room for him/herself while, at the same time, emphasizing the value of the other — social – functions, to be shared and commonly situated. It was a "radical rethinking of domestic space," together and in close cooperation with other disciplines, e.g., sociologists and economists.

An interesting example of an early approach to industrial fabrication is the work of Konrad Wachsmann; envisioning a far more mass production of buidling elements and his cooperation with Walter Gropius resulted in 1942 in a "Packaged House System", a modular system for a house to be fabricated within a day.

An early "classic" example of the often complicated individual relation between patron and architect occurred in 1950 when Ludwig Mies van der Rohe became the architect for the "Farnsworth House"[3], a retreat in modernist style for Mrs. Edith Farnsworth who, at the end of the building process, filed a suit to van der Rohe. Next to a dispute about increased costs, her views were quite contradictory to the architect's since, however, she had approved design and drawings, she ultimately lost the case.

In 1953, Situationist's Gilles Ivain — aka Ivan Chtcheglov – wrote in his "Formula for a New Urbanism" that "Architecture is the simplest means of *articulating* time and space, of *modulating* reality and engendering dreams. It is a matter not only of plastic articulation and modulation expressing an ephemeral beauty, but of a modulation producing influences in accordance with the eternal spectrum of human desires and the

[2] Buckminster Fuller, R.; R. M. (1960). *the Dymaxion World of Buckminster Fuller*. Anchor Books.(p.19)
[3] https://en.wikipedia.org/wiki/Farnsworth_House

progress of fulfilling them. The architecture of tomorrow will be a means of modifying present conceptions of time and space. It will be both a means of *knowledge* and a *means of action*. Architectural complexes will be modifiable. Their appearance will change totally or partially in accordance with the will of their inhabitants"[4] (ital.orig.,mp).

In 1956, the (Hungarian-born) French architect Yona Friedman created his "Ville Spatiale," a structure adaptable and modifiable according to the wishes of its inhabitants; it was "mobile architecture decided on by the occupant." Friedman used a description derived from a phrase by Abraham Lincoln: "architecture with the people, by the people, for the people"[5]. Also in 1956, the English architects/partners Alison and Peter Smithson completed their "House of the Future," in fact not a purely architectural project but an envisioning of what a future interior would look like. With its clear emphasis on technological innovations, it was critically questioned in the media: "This is a House?" (sic.)

In 1961, John Habraken publishes "de dragers en de mensen" ("The supports and the people"), not so much a design for individual housing but an encompassing vision on citizen's participation and its (pre)conditions; with a clear emphasis on the "everyday" architecture.

"*I believe that our society will be and should be diversified. A society in which the individual is happy is one in which each person can display his individuality and yet social order is maintained, where greater freedom and a larger variety of options are possible.(..)*
Future society should be constituted of mutually independent individual spaces, determined by the free will of individuals. Systems are necessary but our policy should be to develop the possibility of acquiring greater spaces for individuals on the basis of system, not one to reduce the spaces for individuals to conformity through the instrument of system. Given this proposition, each space should be a highly independent shelter where the inhabitant can fully develop his individuality."

Kisho Kurokawa, Metabolism in Architecture, 1977. (p.79)

[4] http://www.bopsecrets.org/SI/Chtcheglov.htm
[5] Friedman, Y. (n.d.). Architecture with the people, by the people, for the people. MUSAC / Actar.

In Japan, around 1960, the Metabolists fused ideas about architectural mega-structures with those of organic biological growth; in the words of William Gardner: they "*believed that architecture and the city should be designed to remain open to processes of growth, decline, and transformation*"[6]. By creating large – primarily vertical – support-systems equipped with "capsules," i.e., standardized housing units (by, e.g., Kisho Kurokawa who referred to them as "*a dwelling of Homo movens*[7], or Arata Isozaki) the group searched for a synthesis based on, e.g., Marx' work. In the early 1960s, as almost the entire visionary opposite, it was again Frederick Kiesler who created his "Endless House," a "*continuous living area in which one can find seclusion*"[8]. Kiesler, whose writings offer a rethinking of not only architecture but also its clear links to the arts, argued that "*Art creates life. Thus living in the 'Endless House' means to live an exuberant life*" in which "*nothing can be taken for granted.*" He emphasized that "*every mechanical device must remain an event and constitute the inspiration for a specific ritual*"; it was to be "*the last refuge for man as man.*"

In the USA, Paolo Soleri founded in 1970 his Arcosanti-project in Yavapai-county Arizona, structured around the belief that architecture and ecology should merge into what he called "Arcology." It envisioned a deal in the relation between humans and environment, focusing on sustainability and our attitude toward nature. Its more recent attention is caused – apart from Soleri's writings being published now 50 years ago – by the fact that his thoughts touch upon the current thoughts of, e.g., ecologists Timothy Morton and Graham Harman.

The Dutch artist Constant Nieuwenhuys, like Ivain member of the Situationist movement between 1958 and 1960, worked between 1956 and 1974 on his "New Babylon," a visionary project based on a book by the Dutch historian Johan Huizinga: "Homo Ludens" (1938). Envisioned as a post-revolutionary and anti-capitalist society in which nomadic man – due to further automation – could devote time to play and creativity, the project was later declared "unlivable" by many. As Jeroen Onstenk – citing Constant – illustrated in 1984: "*New Babylon is a design of something that really can't be designed, i.e. the self-creative capacity of people to constantly change their environment. This paradox can indicate the limit of the possibility of designing a future model. The artist-revolutionary offers his model and modestly retreats himself with the statement 'the true designers of New Babylon, however, will be the new Babylonians*

[6] Gardner, W. (2020). Liquid Cities. *Places*.
[7] Kurokawa, K. (1977). *Metabolism in Architecture*. Studio Vista.
[8] Kiesler, F. (1996). Selected Writings. (G. Gohr, S & Luyken, Ed.). Gerd Hatje.

themselves"[9] (transl.mp). While Soleri's project was, to a large extent, situated underground, Constant's plans consisted of large interconnected "sectors," i.e., structures – comparable with Friedman's "Ville Spatiale" – above ground level that included variable infills to be used where and when needed. It became a vision close to Friedman's work, be it that it was more detailed and based on (upcoming) technologies. Constant emphasized that the entire project was achievable from a technological point of view; but, as Jos de Mul puts it in perspective in an extensive article, he was also "*reluctant to invest too much hope in the creative potentiality of the computer*"[10].

In particular, the creative projects envisioned by the various British members of Archigram (Warren Chalk, Dennis Compton, Peter Cook, David Green, Ron Herron, and Michael Webb) were primarily structured around the technological developments, with an open mind to other disciplines. Likewise, Cedric Price's "Fun Palace," a "laboratory of fun" realized in the early 1960s in close cooperation with theater-director Joan Littlewood who "believed in the community and in the genius in every person," was intended "*as an opportunity to radically question how postwar society might rethink its engagement with learning and entertainment – to open up culture, science and education*." In that sense, it was not so much about housing only but referred to/focused on the options technology offered to link and experience spaces. In the end, Archigram's ideas were, much like Constant's, not adopted by the larger part of society.

> "*Archigram contended that architecture should not create fixed volumes of space to be mutually inhabited, les still shaped masses of masonry, but must provide the equipment for "living", for "being". The extent to which the architectural profession was failing to design this equipment revealed to Archigram that technological modernism was an incomplete revolution, reduced to a dowdy, killjoy version of itself, colorless, hard-edged, frugal, planned rather than chosen.*"[11]
>
> ('Archigram', Simon Sadler)

[9] Onstenk, J. (1984). In het labyrint. Utopie en verlangen in het werk van Constant. *Krisis, 15*, 4–21.

[10] Mul, J. de. (2009). Database Architecture: Anthropological Reflections on the Art of the Possible. Journal of Asian Arts & Esthetics, 3, 1–14.

[11] Sadler, S. (2005). *Archigram: Architecture without Architecture*. The MIT Press.

On the small-scale Michael Webb's "Cushicle" (1964) was an approach to providing basic shelter, i.e., the minimal requirement for a house, inflatable and to be carried on the back. Likewise, in 1965, Francois Dallegret created, together with Reyner Banham, his drawings on "Un-House, Transportable standard-of-living package," i.e., an inflatable bubble with a range of technologies devoted to a more environmental-friendly attitude. Banham himself criticized that same year the American habit of incorporating technologies in the home to such an extent that he questioned the need for a house to hold it all up ("A Home is not a House").

That same year – 1965 — the "SAR" was raised; the Dutch Foundation for Architectural Research. Although not primarily focused on individual housing, its goal was "the stimulation of industrialization in housing." Today, known as "Open-Building," it argues that "Buildings — and the neighborhoods they occupy — are not static artifacts even during the most stable times, and during times of social and technical upheaval need adjustment in some measure to remain attractive, safe and useful." Given the topic of this book, I will go into more detail in Chapter 11.

An interesting, though somewhat derived (or anarchitectural), approach was exercised around 1970 by Gordon Matta-Clark, who despite being educated as an architect acted as a socially moved artist first. His "Office Baroque" in Antwerp though was an attempt to explore and surface a building's history by literally cutting out sections of the building. The Austrian group Haus-Rucker-Co explored "*on the one hand, the potential of architecture as a form of critique, and on the other the possibility of creating designs for technically mediated experimental environments and utopian cities*"[12]. E.g. For example, their "Oase nr.7," an inflatable "balloon" structure attached to the surface of the Friedericianum at the 1972 Kassel Documenta nr.5 questioned the possibility of play and relaxation. This approach joined other movements at the same time, like Archigram and the Situationists.

In 1975, Christopher Alexander wrote, with various other authors, "A Pattern Language"; a system of all together 253 methods to design and realize the environment, from city level to house level, which was guided by "*the observation that the most wonderful places of the world were not made by architects but by the people*." The following "A Timeless Way of Building" was a more philosophical attempt to research the — additional — hidden qualities in architecture as an art, not as a way to provide buildings only.

[12] http://spatialagency.net/database/haus-rucker-co

Individual housing also became the subject of conceptual/theoretical exercise; in 1975, Peter Eisenman's "House VI" – the last of a series – was designed and built in Connecticut, USA for the Frank-family. It was a concept for a house, not – by traditional standards anyway – a house to live in, i.e., certainly not by the standards of Mrs. Suzanne Frank who wrote a devastating critique afterwards ('the Client's Response', 1994). Eisenman questioned the (im)possibility of our dwelling in times of images together with the traditional ways and means in which we relate to and occupy our home. House VI, created as an envelope on the basis of a shifted 3D grid, included "disruptive solutions" (such as a stairway leading to the ceiling or a column between both marital beds); the house turned traditional connotations upside-down. Likewise, architects/artists Diller Scofidio in their Capp Street- project "withDrawing Room" (1988) sought "*the level at which uncertainty dances*" (Roemer van Toorn). The user of space is disturbed in his/her experience; traditional connotations and expectations are not accounted for.

In 1985, Toyo Ito created "Pao," a small dome-tent-like structure made of steel tubes and textiles that also served as a filter or membrane for the "media," providing a sheltered sphere for the urban (in particular female) nomad. In 1989, Ito designed a more altered and sophisticated version: "Pao II."

Following up on Habraken's Open Building principles, Yositika Utida realized the NEXT21-project in Osaka/Japan. It consisted of 18 houses designed to accommodate a variety of households, on the principles of flexibility and sustainability, together with a "wildlife-habitat."

From a spatial point of view, the "Curtain Wall House" in Tokio (completed in 1995) by Shigeru Ban is worthwhile referring to: a structure/level above ground that is separated from public space by a removable heavy curtain only, questioning whether, here, we ultimately deal with the house or the street, or private space vs. public space. John Hejduk's "Wall House"[13] aims, besides – like Eisenman – trying to disrupt conventional expectations and attitudes in the house, to deal with the privacy issue; qualified once as "Unmasked living"[14], the design of the house forces the inhabitant to make a conscious choice when entering a room. Staying in a room often implies being exposed to the outside world; it requires a rethinking of what is considered private and what is believed to be public[15]. His "Good Neighbor House" (1975) consisted of two houses situated back-to-back, but its inhabitants can see each other by means of technology, i.e.,

[13] Only one example is realized in Groningen/Netherlands.
[14] 'Ontmaskerd wonen', Arthur Wortmann, in Archis 6-88.
[15] See the article by artist Auke Hulst, NRC, 19.01.2007, p.25.

through spyholes and periscope. Life is not hidden behind a façade but needs to be consciously organized. A Japanese example of trying to deal with issues of privacy is, e.g., Tadao Ando's "Kidosaki House," built in Tokyo in 1985–1986. Its private spaces are completely hidden by a quarter-circle wall, revealing nothing at the public space outside. Behind the two-storey concrete wall is — like in many of Ando's designs — a courtyard that is central in the design of the house. In 1991, Rem Koolhaas delivered a project of 24 houses in Fukuoka, Japan; all three-storey houses, accessible from a central courtyard play with public vs. private, with light vs. dark, and with closed vs. open. The ultimate result is, in Christophe van Gerrewey's words "*collective and concentrated loneliness*"[16]. In 1998, Rem Koolhaas designed the "Bordeaux House" for a principal who, after a car accident, became paralyzed and sentenced to a wheelchair. Nevertheless, he insisted that he wanted "a complex house because the house will define my world." The result was a three-storey building that incorporated a large elevating platform connecting all levels, thus making the entire home accessible to its inhabitant.

An interesting (Dutch) project was Carel Weeber's "Wilde Wonen"; its introduction dated back in 1997. It "*is the farewell to state thinking in architecture. It is an impetus to shape homes and living environments for an emancipated population in a free market*" (transl.mp). Its goal was a more open/free design and realization of individual housing, without the interference of project developers and/or corporations. On the larger scale, it never became a reality but did cause much discussion in the media, back then and many times after when the discussion on other ways/means of building housing and the position/role of the inhabitant surfaced.

The "Bioscleave House" in New York by Shusaku Arakawa and Madeline Gins[17], completed in 2008, tries to offer an environment – "*an inter-active laboratory of everyday life (..) to extend the human lifespan*" — that stimulates the awareness and, together with their other work (i.p. "Reversible Destiny"), offers possible options for enhanced and extended experience.

[16] Gerrewey, C. van. (2019). Transparante Architectuur in de twintigste eeuw, van Le Corbusier tot Rem Koolhaas. *De Witte Raaf, 199*, 7–9.

[17] http://www.reversibledestiny.org/architecture/bioscleave-house-lifespan-extending-villa

The digital move

During the last decades of the 20th century, digital technology, in general, and its computer-steered options started to act in a more significant, envisioning role. In 1996, Marcos Novak wrote, in an article for CTheory called "Transmitting Architecture; the Transphysical City": "*In this effort to extend our range and presence to non-local realities, architecture has been a bystander, at most housing the equipment that enables us to extend our presence. The technologies that would allow the distribution or transmission of space have been unimaginable, until now*"[18].

An interesting, though primarily theoretical, project took place in 1997, initiated by the Anyone Corporation. It challenged seven architects to design a "virtual house" and questioned whether it was possible in the first place to translate the abstract into actual developments[19]. More concrete, in 1997, Dutch architects Kas Oosterhuis and Lars Spuybroek both realized a section of the "Water Pavilion," not a house but a visitor' center that is part of the innovative protective waterworks in the western sea-shored Netherlands. It illustrates the forces/moods of water by creating an interactive interior space that "changes" while moving through its space. In 2004, Lars Spuybroek and sound-engineer Edwin van der Heide created the "Son-O-House"; a synthesis of space, architecture, and sound in which the computer plays a significant role in design and sound. Spuybroek strived "*to create a proto-house, not a house with all the rooms and furniture, but 'a house as a place in the world', a house that everybody could enter and live in, act, move, have feelings, leave traces, connect to previous "inhabitants"*"[20](sic.).

More spatial as well as ephemeral in its architecture, was Diller Scofidio's (2002) "Blur Building" for the Swiss Expo in Yverdon-les-Bains. Their "*objective is to weave together architecture and electronic technologies, yet exchange the properties of each for the other.*" Later projects were sometimes stand-alone art projects first, researching spatial experience and the optional (accompanying) technologies: e.g., Daan Roosegaarde's early "Lotus Dome" project consisted of a "living dome made out of hundreds of heat sensitive smart flowers which open in response to human warmth and light, creating an interactive play of light and shadow." Tomas Saraceno's work was presented at the Venice Biennale in 2009 where he created an "astronomical" web above ground, questioning what constitutes architectural structure. "Hylozoic Ground," created in 2010 for

[18]Novak, M. (1996). Transmitting Architecture; the Transphysical City.
[19]See, e.g., Beckerath, V. (1997). Any Thing Goes, the virtual house. *Archis, 6*, 59–61.
[20]Spuybroek, L. (2009). *The Architecture of Continuity*. NAi Publishers.(p.169)

the Canadian Pavilion at the Venice Biennale by Philip Beesley consisted of a technological/artificial forest, a poetically shaped web hanging from the ceiling made of acrylic wires and connected whiskers, providing an interplay with visitors: glowing, reacting, withdrawing and approaching.

In 2008, Usman Haque, Adam Somlay-Fischer, Ai Hasegawa, and others created their "Reconfigurable House 2.0." As described on the website[21]:

"The Reconfigurable House is an environment constructed from thousands of low tech components that can be "reconfigured" by its occupants. Any sensor/actuator can be connected to any other sensor/actuator – it is the occupants of the house who determine the systems that run inside it. Constructed at ICC in Tokyo, Japan, and open to the public until March 2008, the project is a challenge to ubiquitous computing "smart homes", which are based on the idea that technology should be invisible to prevent DIY. Smart homes actually aren't very smart simply because they are pre-wired according to algorithms and decisions made by designers of the systems, rather than the people who occupy the houses. In contrast to such homes, which are not able to adapt structurally over time, the many sensors and actuators of Reconfigurable House can be reconnected endlessly as people change their minds so that the House can take on completely new behaviors."

With the latter statement in mind, facilitating "completely new behaviors," it is essential that the environment provides the proper framework. It is therefore remarkable that many of the (even early) projects – see, e.g., le Corbusier, Teige, Friedman, Constant, Habraken — referred to focus on the principle of main (common) structure and personal infill. This is/remains in fact a returning theoretical principle over the last decades, however, rarely practiced and above all realized.

Why?

Although brief and incomplete, this summary already shows the wide variety of projects by a likewise variety of artists/architects, sometimes socially motivated, sometimes artistically, technologically, or otherwise. Also, the differences occur primarily within scale and sphere, i.e., some concerned the individual (housing)

[21] http://www.haque.co.uk/reconfigurablehouse.php

space, some emphasized basic structures; some were devoted to frameworks creating freedom while others caused (at time unintended) restrictions or limitations. What, if any, is their binding factor; what is their common goal; what is aimed or searched for; and why are these early projects almost never realized and the more recent ones often neglected or even ignored? Just stating that they were the product of creative and visionary minds and served no other purpose than to act as thinking project does not do justice to the serious intentions (e.g., Constant worked on his New Babylon for almost 20 years and maintained that his project was technologically achievable, and the members of Archigram demonstrated their thoughts and works broadly in educational and exhibition projects) in trying to find answers to situations or developments that were in serious need of open reflection and fundamental rethinking.

While many projects were structured around what could rather philosophically be described as Leo van Broeck's question of "the spatial presence of human species on earth," for most of the examples mentioned above, the primary thought behind them was — most probably — not a rational one; in particular, the more recent projects are, above all, creative, imaginative projects; i.e., the search is for other, more abstract values besides solving a technical and/or social issue only with the knowledge that technological innovation made these projects realizable. It was a creative rethinking of a concept for living in a changing world. The periods in which these projects were envisioned often required the innovative powers of others than architects only; like in today's times man needs all the creativity and imagination, we can mobilize to search for an appropriate synthesis of art, technology, and society. E.g.For example, Daan Roosegaarde refers to many of his projects as "techno-poetry"; thus "connecting people and technology in artworks." When stripped of its technological framework, the "profit" is not a project/product only but a system, a frame, a (pre)condition, and a possibility for additional experience, for witnessing the unexpected and for envisioning environments with the help/use of innovative technological developments. Technology, in Bernhard Stiegler's phrasing, is a "*pharmakon*"; i.e., it can serve as a means to improve or it can serve as a means to destroy. Looking at today's world and, above all, trying to anticipate and think tomorrow's, with its rapidly developing technological innovations as well as its environmental and political problems, it is unavoidable as well as understandable that there is a call for a new utopia, for a real paradigm-shift in how we envision our "place on earth." Where Constant was well aware that technology in his time was not adequate enough to facilitate/realize his project, today, we can no longer argue that a lack of technological options and innovations stands in the way of any real change. Increasingly, technologies like, e.g., Internet of Things/People and Artificial Intelligence compel us to consider their and our role as well as their impact on our life, while, at the same

time, remember Jaron Lanier's statement: "*It's only human choice that makes the human world function. Technology can motivate human choice, but not replace it*"[22].

Early projects (e.g., Ivain, Friedman, and Constant) already emphasized the options and possibilities for inhabitants to adapt or modify their environment and to incorporate citizens in the systems of building and modification. Throughout the recent centuries, innovative technologies have facilitated building developments that were not possible before; e.g., the invention of the first "safe" elevator in the mid-19th century made high-rise buildings realizable, Oosterhuis'/Spuybroek's Water Pavilion is designed around new digital developments. Technology, however, can also provide the ways and means to increase or improve our democratic processes; when focused on our housing – and therefore private space/spatial privacy – it can result in a more participative role over what constitutes private space. It implies, however, that the inhabitant has control over what constitutes this space, over the part that controls relevant systems and infrastructure as well as over generated (personal) data. In Constant's phrasing: "*One could call New Babylon the absolute 'Gesamtkunstwerk', the synthesis of all human activities, society as a work of art, the city of the technical mass man, the human being in the unemployed era*"[23].

Traditional housing was – and in part still is – a way/method to answer our basic need for shelter first; (recent) history in this tells us that, while this need is persistent, it is also accompanied by the increasing possibilities for enhancement and for extended experience. Technology also provides for the expressed desire of participatory activity in creating, designing, and maintaining our (built) environment, one that also serves as the primary element within the actual move to a really smart, participative city. As, however, various earlier projects have showed, so-called "smartness" comes close to control, surveillance, and, in fact, restricted freedom. Constant, while always stressing that he only made suggestions for a future world – "*the environment is created by the activities of life not the other way around*"[24] — ultimately finished his work on New Babylon because in the end, he could no longer envision man in his envisioned environments.

[22] Lanier, J. (2010). You Are Not a Gadget: A Manifesto (Vintage). Vintage. (p.240)
[23] Constant in het Nieuwsblad van het Noorden, 23-7-1966
[24] https://stichtingconstant.nl/new-babylon-1956-1974

In a recent essay as well as in an extensive interview[25] in the weekly "de Groene Amsterdammer," Dutch Chief Government Architect (Rijksbouwmeester) Floris Alkemade criticizes policy makers and politicians: "*As if the country is handed over to myopic accountants, who built up a completely distorted picture of efficiency and cost control from a straightforward point of usefulness. Everything is subjected to painstakingly substantiated arguments that, even if built on quicksand quickly provide a chine of exactness in all their abstraction*" (transl.mp). He calls for change, for a more extensive discussion on housing as well its framework, for more imagination, and for more dreams. Apart from the much-needed awareness that technology has its influence on an individual scale – see Chapter 10 – there is the collective contemporary urge for freedom, the freedom to be able to envision and realize the (built) environment man needs. As Paul Mason argues, "*The networked individual may be oppressed, harassed, crushed down by circumstance. But the life they are living – simultaneously empowered and manipulated by technology – contains the seeds of a project of human freedom based on overcoming this alienation and self-estrangement*"[26]. The contemporary question therefore is how nature, architecture, and (digital) technologies can merge in such a way that the result facilitates as well as enhances the spatial options for required freedom, i.e., dwelling understood as "being at peace in a certain place, at a certain time."

First, I will discuss the "architecture," the primary adaptation of space to facilitate housing.

[25] https://www.groene.nl/artikel/alsof-het-land-is-overgedragen-aan-bijziende-accountants

[26] Mason, P. (2019). *Clear Bright Future, a radical defence of the human being*. Allen Lane.(p.205)