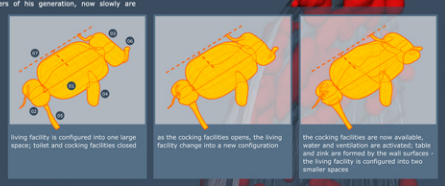
[NOWL] - NEW WAYS OF LIVING

INFORMATION TECHNOLOGY AND ARCHITECTURE - COMPETITION 2001

[Jules Verne]
The great success of the tale; Five Weeks in a Balloon, 1863 encouraged Jules Verne (1828-1905) to produce other tales in the same vein of romantic adventure, with increasingly deft depictions of fantastic but nonetheless carefully conceived imaginary scientific wonders.
Jules Verne completed the unpublished novel *Paris au XXe siècle* or *Paris in the 20th Century* in 1863, but locked it away in a trunk; not to be found until 1989. This 19th-century vision of the future describes life among skyscrapers of glass and steel, high-speed trains, gas-powered automobiles, calculators, fax machines and a global communications network. It portrays the life of an idealistic young poet, Michel Dufrenoy, who struggles to find happiness in the fiercely materialistic dystopia that Paris has become by 1960. Like George Orwell's 1984, Verne's novel is a grim and troubling commentary on the human costs of technological progress. This novel's basic story-line contradicts the general public's popular image of what a work by the legendary Jules Verne should be: i.e., an exciting Industrial Age epic which glorifies scientific exploration and technological innovation. In contrast, despite its frequent detailed descriptions of high-tech gadgetry and its occasional flashes of wit and humour, this dark and troubling tale paints a future world that is oppressive, unjust, and spiritually hollow. Instead of epic adventure, the reader encounters pathos and social satire. Instead of intrepid heroes going "where no one has gone before," the reader shares the life of a lonely and angst-ridden poet.
Pierre-Jules Hetzel, Jules Verne's publisher, offers what is perhaps his most stinging - albeit, in historical retrospect, highly ironic - criticism against Verne's futuristic tale, saying "My dear Verne, even if you were a prophet, no one today would believe this prophecy...they simply would not be interested in it." Hindsight is always 20/20; Pierre-Jules Hetzel probably read the French literary market correctly, but many of Verne's predictions did come true. Paris circa 1960 did evolve into a smooth-running, high-tech commercial megalopolis where gasoline-powered cars crowd the wide streets and urban commuters are whisked along in pneumatic tube-trains suspended from above. Computer-like adding machines and fax-like communication devices link the city's financial markets with the world's many multinational corporations (who hold the real political power). In this era, tactical military weapons have become so perfected that the very idea of war itself is no longer thinkable. And the Earth's skies and oceans have long ago been thoroughly explored, analysed, and inventoried for their profit potential.

In the year 2020 most people will still be living in terrace houses or in flats in cities, which lies where they have been lying for centuries. Some of us will still buy our furniture in IKEA and decorate our homes with Christmas plates from Royal Copenhagen and heritage from ancestors. We will drive our cars back and forth between our homes and our place of labour. George Bernard Shaw once said: "Today's homes are little more than a place to sleep next to one's car." Perhaps only a few things will change noticeably. However, it is ironic that the inventions thought of and developed by Jules Verne and others of his generation, now slowly are disappearing. Designers have spent the past two centuries to improve the design of machines and electronic devices that we surround ourselves with and now they are trying to convince us get rid of most of them. It is predictable that newspapers, radio, TV, telecommunication, PDA and computer will merge and become one media and that the device itself will disappear. They will become pervasive; perhaps even a part of our bodies and technology will thus become transparent. Household devices no longer will be required to be attached to walls through wires, which eventually means almost limitless ways of decorating the interior of our buildings. The technology will become our homes, which will accommodate all necessary facilities in the very skin - in the material. A toilet or a table does not exist when there is no need for it. The walls will form a table by deforming the material into the required shape by applying a minor electrical charge to a material that has a memory of its initial shape. Windows will function either as a window to the view outside our homes or as augmented windows to the world. This development surely must lead to changes in our society, when it comes to organizing our cities and our ways of living. This project is the extrapolated culmination of social trends already very palpable during our own time: e.g., information and communication technology positivism, *laissez-faire* capitalism, and accelerated technological growth. The technology of tomorrow is being built today and now we are assembling the pieces.



living facility is configured into one large space; toilet and cocking facilities closed

as the cocking facilities opens, the living facility change into a new configuration

the cocking facilities are now available, water and ventilation are activated; table and zink are formed by the wall surfaces - the living facility is configured into two smaller spaces

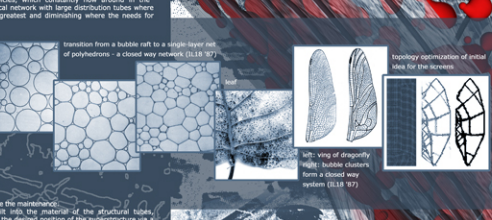
villa [I-unit] type 48c
basic configuration [one bedroom]
01. living facility
02. toilet facility
03. cocking facilities
04. storage
05. self-guiding supply tubes
06. ventilation
07. line of superconductors, gyroscopic cubicles and self-guiding entrance tubes

[vertical village]
Michel Dufrenoy's alter ego, Kaptain Ökay, now a man of 80, lives in a unnamed city. Although this future city no longer is the grim and troublesome place, which Jules Verne foresees in *Paris au XXe siècle*, it is still a somewhat changed and different city. The existing (historical) city, with its modernistic extensions of the 1960's progressive building programme, is no longer possible to fix. It is in a state of total disarray due to its lack of density and its way of organizing transportation. Superstructures - vertical villages - are built on top of the existing urban fabric to fully exploit the city in three dimensions to comply with the growing need for inhabitations in our cities. Approximately 20.000 people inhabit each structure, which facilitate the villagers with entertainment, restaurants, sports and opportunities for physical labour. The historical city slowly develops into parks of self-growing urban forests, gardens, farming and industry. High-speed trains and hyper ways run between villages, cities and countries as a part of a global network of cooperative transportation systems in a highly tessellated and dynamic mesh, which eliminates bottleneck situations.

The way of dealing with the political processes has come to a stand still years before. The traditional political parties have collapsed due to the complexity of the society. Social- and economical scientists; mathematicians and programmers have developed 'n' number of complex dynamic algorithms, [PoliRithM], which organizes society after multifaceted rules of cooperative gaming theories in order to serve justice to the majority with the respect to the minority. Neither single individual nor an elite group has the control of the algorithms. Each village has its own community [senate] and are self-governed. The local [senate] does not function as a political organ that handles traditional political and bureaucratic affairs. Day to day governing are automated and administrated partly by learning database systems, [LeadSystM] and partly by technocrats.

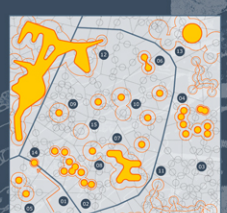
The [PoliRithM] describes different sets of cultural behaviours, laws, ways of living and they describe specific ways of organizing the infrastructure and the spaces for inhabitation. Different algorithm = different village, different population, different visual (architectural) expression, etc. This is necessary due to the poly cultural nature of the village, which respects and accepts that it is a society with complex needs for cultural tolerance and differentiated space requirements. The systems accept in number of ways of living and organizing the inhabitation units [I-units] to accommodate the villagers' cultural, educational and financial situation.

[screens]
A number of protective screens - placed around a square that defines each village - acts as vertical facilitating surfaces for inhabitation. The screens are structurally stable but capable of adapting and thus flexing and deforming themselves according to weather conditions or tectonic movement. They have the structural ambition always to minimize stress in the structure. In a snow blizzard or on a hot summer day the screens will fold to protect the units of inhabitation from either the snow or to give shade from the sun. On an early spring day they will slowly unfold and maximize their area to provide the rays of sun to most of the inhabitants in the village. These processes and the amount of movement are controlled in accordance with satellite information about the weather conditions and the [PoliRithM].
The oscillating movement of the screens are used, as a source of energy by absorbing the movement into the square, which is a large plate made of a *piezoelectric material*, a material that turns physical movement into electricity. The screens are always moving a little, from heat expansion, humidity, as a reaction to the climate and even in a fixated position the top of the screens can move several feet in a stiff wind. With *piezoelectric films like polyvinylidene fluoride* it is possible to turn the gaskets of the structure, into electrical generators.



The screens are membranes reinforced with tubes made of a composite fibre material in altering diameter and organized as single-layer net of *polyhedrons*, a minimal structural system, which allows the superstructure to reposition the structural strength to where the forces on the structure are greatest. It is able to take care of minor maintenance by itself and to fix smaller cracks in the construction. The tubes contain all infrastructures, e.g. water and energy supply and waste disposal. People are transported in small gyroscopic cubicles, which constantly flow around in the structure. The structure is a hierarchical network with large distribution tubes where the traffic and service demands are greatest and diminishing where the needs for services are smallest.
The membrane skin is a smart material, which even after a large deformation is capable to return to its initial state. It is shingled with solar cells with the ability to take on any colour and any level of transparency. In this way the screens can be used as giant monitors for public broadcast, infomercials or even as a screen for advertising if the villagers allow it. It can also be used as a way of controlling the amount of sunlight passing through to the individual [I-units]. The first large-scale experiments with nano-technology in the building industry are implemented in the screens by letting nano-robots handle the maintenance.
Energy neutral super conductors built into the material of the structural tubes, membranes and units keep all units in the desired position of the superstructure via a homogenous magnetic layer. All units have self-guiding service tubes that will find the nearest point of the required type of service in the secondary structure and penetrate the material to gain access to the services. *Polytetrafluoroethylene*, a material used in e.g. space suits, has the ability to regenerate itself when a service tube is detached from the composite structural tubes. The [I-units] are attached only to the transportation tubes on the string in the secondary structure, as it is impossible to inhabit an intersection. Only [FlowMats] - mats floating after the costumers - occupying waste space and [PubInfra] - public service facilities - are able to stretch across the actual main structure of the screens and only by still allowing passing of [I-units].
Designers and manufactures will supply the inhabitants with countless numbers of [I-unit]-models along with a wide range of recreational and public facility units. Part of the screens will be dedicated to [WorkComms] - a plug-in office cubicle system vacant for all, to provide alternative ways of organizing business and service facilities for labour. In times of growth a small business will be able to expand, reorganize or fusion with other types of enterprises. The village will benefit socially and economically from providing a network between people and enterprises, independent of competition and business competences.
Construction companies will build villages of varying configuration adapted to specific types of climate, soil conditions, political system and architectural preferences.
These types of structures and materials ensure a dynamic building structure without unnecessary permanent fixation to a specific location as well as a city regulating itself to accommodate new needs and situations.

[PerZ]
The movement of the different units happens only in accordance with the rules set by the game theory of the [PoliRithM]. No single individual, corporation or government owns the village. The villagers in collaboration own it but no single plot of 'land' is sold. Any villager can inhabit any available string in the structure as long it corresponds with the [PoliRithM] and the [PerZ] - which is a local perimeter zoning system.

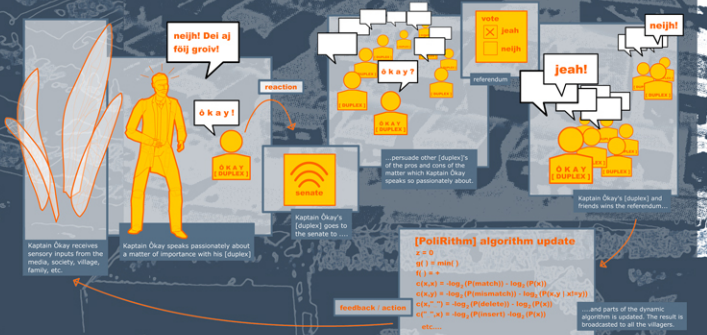


organization principle - schematic elevation
01. main structure for transportation between the different zones in the structure and the city below
02. secondary structure for transportation within the zone
03. potential area for inhabitation
04. high density [I-units] low rent
05. tenant [I-unit]
06. [FlowFamily [I-unit] - w. shared facilities
07. large commune [CommUnit] - multiple family units
08. [I-unit] with loose attachment to [CommUnit]
09. [Villa I-unit]
10. [Villa I-unit] w. reserved space for e.g. parents moving closer to their family
11. [WorkComms] floating office structures vacant for all villagers - preorder able or leased for periods of time
12. [FlowMat] - mats floating after the costumers - occupying waste space - regulated by the [PoliRithm]
13. [PubInfra] public service facility w. recreational spaces
14. moving [I-unit] w. very narrow [PrivPerZ]
15. reserved space for to occupied by the moving [I-unit]

The [PerZ] handles a dynamic rent control system, [DynamicSystM], which keeps track of the position, size, density and number of inhabitants in each [I-units]. Each [I-unit] has to organize according to its neighbours and it has to respect 'n' number of rules within the system. This secures a self-regulating and organizing principle much like that of flocking birds or schools of mackerel, but also a dynamic urban structure where the villagers organize by moving around in the structure with their [I-unit] as they please.
Local rules refer to e.g. a public/private perimeter zone's needs or laws. The villagers may define their privacy perimeter zone [PrivPerZ] to be very narrow and express a wish to share certain facilities with other villagers, which results in lower rent and a high density in specific areas of the superstructure. This leads to clusters of communes and self-green houses with e.g. low energy consumption, and high social interaction. Other villagers may choose to expand their privacy perimeter to ensure a solitary building status and thus accepting a higher rent.
Certain positions in the superstructure will be more attractive than others, but the attractiveness of a coordinate is a variable that changes during the day, the year or depending on the number of neighbouring [I-units] and urban activities. The [PrivPerZ] responds to the rules set up in the public perimeter zones [PubPerZ] which is a basic set of zoning algorithms. The [PubPerZ] controls the traffic, waste disposal, power and water system that insures that an [I-unit] only can stay in this zone during transit from one zone to another.
[PoliRithM] can overrule local rules e.g. in times of conflict or if certain zones or neighbourhoods run amok, but only by having a referendum.

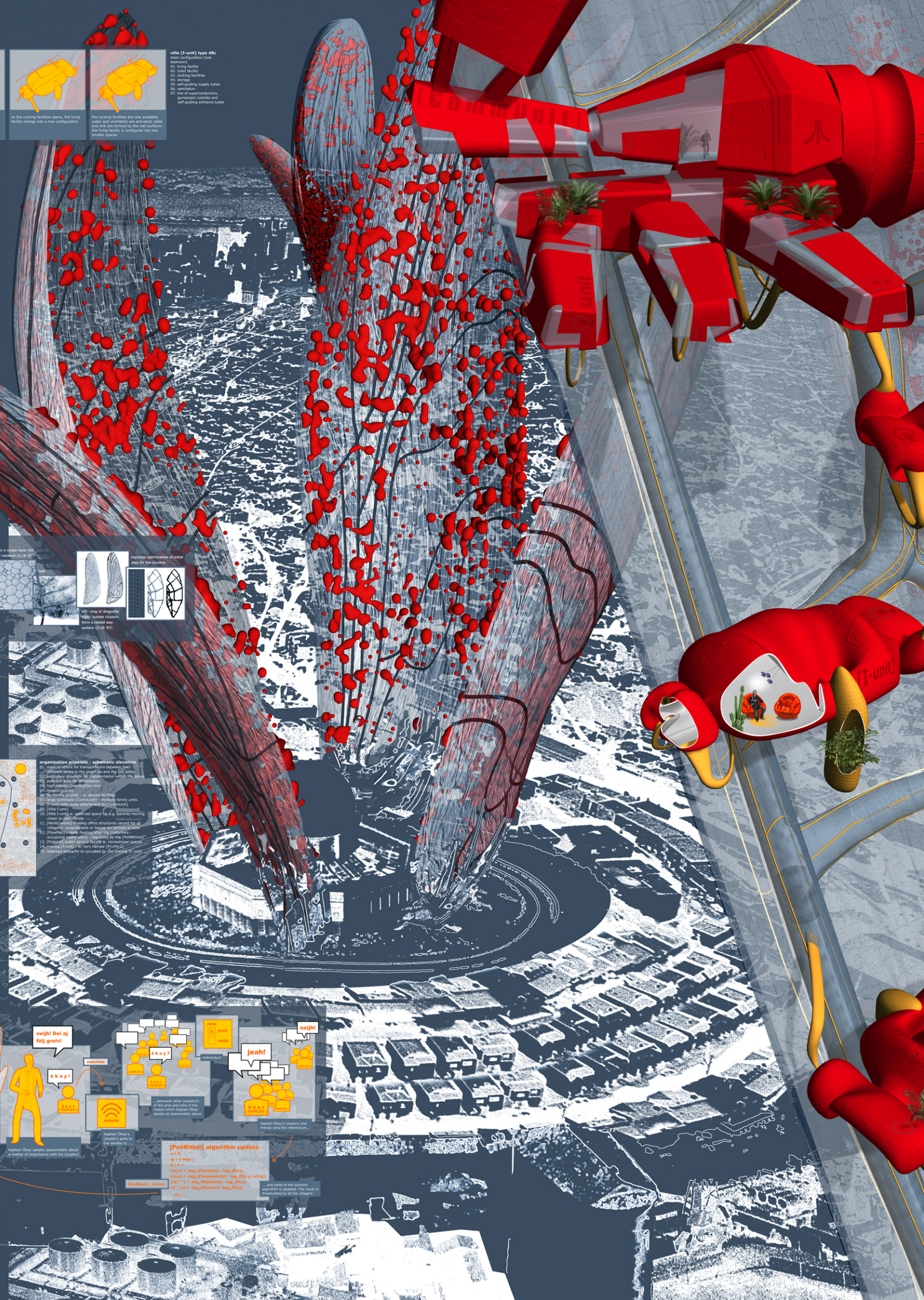
[duplex]
Kaptain Ökay - as all other villagers - has a [duplex], which is a personal senator that handles personal as well as public affairs for him. It monitors the public opinion and is configured manually or by learning from his behavioural pattern. The [duplex] consists of a series of complex dynamic algorithms that when put together represents Kaptain Ökay's attitudes, needs, opinions and habits, capable of acting as behalf of Kaptain Ökay in the [senate] by monitoring him. The [duplex] can e.g. join political phora as pressure groups, act on a legislation or put forward a proposal for a bill to be voted for in a referendum and be part of the always ongoing update of the algorithm. But it will also configure the temperature in his living room, order his favourite food, warn the doctor when he is ill, etc.

When Kaptain Ökay's [duplex] meets with the other senators it will try to gather as many senators as possible in order to persuade them to hold a referendum about an event that will have an effect on the village as a whole. Depending on the importance of the referendum a certain percentage of the [duplex]'s are needed. Any result from the referendum that changes the existing political situation is written into the dynamic [PoliRithm], and all villagers [duplex]'s are updated subsequently. The [duplex] does not have to disturb the villagers every time the dynamic algorithms change, since most bills do not effect the majority. If an area of personal interest is being voted for the [duplex] will warn Kaptain Ökay in order for him to take personal part in the debate if so desired.



[now!]
Martin Van Buren - the 8th President of the United States - was referred to as *Old Kinderhook* after his birthplace of Kinderhook, New York. When running for his second term of office in 1840, Van Buren used the slogan O.K in his attempt to beat General William Henry Harrison. Martin van Buren lost the election because he was not regarded as a *man of the people*, but rather as an aristocrat with extravagant tastes who lacked genuine sympathy for the problems of the ordinary citizen. Today most people don't know who Martin van Buren was but the word okay has become the single most recognized word on earth and is no longer considered to be a political slogan. Okay has become a word of common understanding and acceptance. Kaptain Ökay represents cultural tolerance, the respect for the individual and the collective. After a long life of experiences he is both a conservative with an awareness of the historical past, as well as a visionary with the ability to foresee and accept the future. He is the link between past and present.

The architectural quality of the vertical villages will be a dynamic and ever growing city, where space for differences, personal preferences and cultural tolerance are compatible with the idea of a community, and where the aim is to encourage villagers to become performers instead of observers - active participants in their everyday life and in their community. The villages provides opportunities to organize, live and work that are possible only by changing the political processes from a top down orientated way of governing into a dynamic process that is based on the notion of a network community; governed by the villagers in collaboration.
Political slogans and information technology in itself will not change our ways of living but when used, as a tool to enhance political engagement and a way to create a sense of belonging to a community, it will change the way we look upon society and the ways we organize our cities - and in due course create new ways of living.



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