“It is good to remember that utopia is nothing but the reality of tomorrow and that today’s reality is yesterday’s utopia.”

La Corbusier, Modulor

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1. Thesis Definition

**Utopia/Dystopia**

Abstract

I will start my thesis project with an analyse of current innovations in technology and new materials to find out what possible potential they may offer for new design solutions. The focus will be on inventions of disruptive technologies of the past and the present and how they change our way of life. An interesting point is to draw conclusions from how the consequences of these technological milestones impact our everyday life. An example is the influence of the internet (in the bigger and the smaller scale): it changed our way to purchase goods, to find a partner and to get e-services.

In an experimental way I will build up scenarios of a possible future based on this technological knowledge. The hypothetical utopias and dystopias will evoke new questions and theories. In the research phase I will among others illustrate classical and modern utopias and dystopias. I will try to capture the spirit and the trends of both, visionary scientists and designer/architects/artists to describe fears and hopes of the future.

Examples of interesting fields of research

Modern life has become much more convenient but at the same time complex with the development of internet. The personal computer is a very good example for an artificial intelligence which has revolutionised homes, workplaces and lifestyles. Domestic robots like the vacuum cleaner “Trilobyte” from Electrolux can be left alone home to clean the house.

Because people in the industrialized countries can live much longer with help of DNA/gentherapy, japanese scientists are developing a humanoid robot to take care of elder people in their houses.

Prosthesis with an intelligent “brain” can be connected to the human body as a substitute for a missing limb. Scientists are currently developing new materials, e.g. a material which can bend light and therefore appear invisible. How is this innovation going to change our use of materials and how we construct houses and urban landscapes?

The population explosion and the current scarcity of finite resources force us to rethink construction and city/landscape planning.

The climate change with consequences like natural desaster hurricane “Katrina” which destroyed New Orleans, are a problem which designers/architects can’t ignore when working with the construction of cities near the water.

The analysis of these contemporary problems will result in the design of an interior, furniture or landscape which mirrors the benefits of visionary science and technological development.
UTOPIAS
2. Definition of Utopia

The word Utopia comes from the Greek ‘ou-topos’ meaning ‘no place’ or ‘nowhere’. But this is a pun - the almost identical Greek word eu-topos means a good place.

In ancient/medieval times, utopian imaginations weren’t always connected to places. Utopias are often perfect worlds free of conflict, hunger and unhappiness.

Historical retrospection of Utopia

Origin of the Utopia concept

A vision of Utopia include often a version of the advanced social structures and traditions. Utopian societies use often systems of justice, control, economy, law, custom and belief to support a particular vision or set of ideals.

Utopia is a parallel but perfected world. By comparing the real and ideal worlds against one another ones can see what has been added, removed or changed.

This can help to understand the ideas behind disagreement, dissent, revolution and reform at that time.

The First Utopia

One of the first and very powerful imaginations of an ideal world is undeniably the idea of Paradise or Garden Eden. The mention of Garden Eden in the story of creation, the opening chapter of the bible, is one of the earliest descriptions of a pure time and place (actually situated on earth), unmarked by history. This perfect place is representing the beginnig of human time and experience.

This version of an Utopia, written down in the 10 century B.C. in Mesopotamia is throughout magical: the humans are not in need of
protection against weather or wild animals. There is no need for privacy, everyone lives in harmony with the others. The people of Garden Eden are one with nature. The humans don’t have to work or hunt for nutrition they just pick food from the landscape.

God creates and supervises this welfare system and takes care of everything. The humans are innocent like children, they have no responsibilities. Comparing this idealized existence against the real world, I believe that at this time people missed: a safe shelter, inexhaustible food sources and peace.

Utopia in philosophy

Plato was a Greek philosopher who lived between 427 and 347 BC. He describes his version of an Utopia by focusing on changes in society. Plato argues that wisdom based on truth and reason is at the heart of the just person and the just society.

To explain his theory he exemplifies prisoners trapped in a cave, watching shadows of life outside cast on the wall by the light of a fire. After a while they will think of the shadows as reality. But in truth reality is different and can only be known by those outside the cave who live in the light of the sun.

Plato is presenting a model for a society in which the citizens take care of their needs. Plato describes his statesmen (guardians) as people who have struggled to the sunlight of reason and learnt the truth about the material world (physics) and the moral and spiritual world (metaphysics.) Only such philosophers can be trusted to rule the state. The humans in Platon’s ideal society take responsibilities for their fate, they don’t depend any longer on God. They have grown up! Leaders of a society are able to reign because of their knowledge and education. He indicates that a hierarchical social structure is unavoidable.

16th century dreams

In the 16th century Sir Thomas More (1477 - 1535) wrote the first formal utopia. He was an English lawyer, writer, and statesman.

In his book “Utopia” he imagined a complex, self-contained world set on an island, in which communities shared a common culture and way of life. He defines systems of punishment, social hierarchy, agriculture and education, as well as customs for marriage, dress, and death.

Examples

- On the island of Utopia efforts are made to link townspeople with country people. Each town is situated no more than a day’s walk from the next. People from town and country are encouraged to meet, develop shared skills and learn from one another.

- The Utopian approach to wealth and money was very different from 16th century England. The Utopians shared their surpluses with one another, helped each other out and built a store of gold to be prepared for a disaster.

The island of Utopia

The island of Utopia is in the middle just 200 miles broad, and holds almost at the same breadth over a great part of it; but it grows narrower towards both ends. Its figure is not unlike a crescent: between its horns, the sea comes in eleven miles broad, and spreads itself into a great bay, which is environed with land to the compass of about five hundred miles, and is well secured from winds. In this bay there is no great current, the whole coast is, as it were, one continued harbour, which gives all that live in the island great convenience for mutual commerce; but the entry into the bay, occasioned by rocks on the one hand, and shallows on the other, is very dangerous.

In the middle of it there is one single rock which appears above water, and may therefore be easily avoided; and on the top of it there is a tower in which a garri-son is kept the other rocks lie un-
der water, and are very dangerous. The channel is known only to the natives, so that if any stranger should enter into the bay, without one of their pilots, he would run great danger of shipwreck; for even they themselves could not pass it safe, if some marks that are on the coast did not direct their way; and if these should be but a little shifted, any fleet that might come against them, how great soever it were, would be certainly lost.

There are 54 cities in the island, all large and well-built: the manners, customs, and laws of which are the same, and they are all contrived as near in the same manner as the ground on which they stand will allow.

The nearest lie at least 24 miles distance from one another, and the most remote are not so far distant, but that a man can go on foot in one day from it, to that which lies next it. Every city sends three of their wisest senators once a year to Amau-rot [the capital] to consult about their common concerns; for that is chief town of the island, being situated near the centre of it, so that it is the most convenient place for their assemblies. The jurisdiction of every city extends at least twenty miles: and where the towns lie wider, they have much more ground: no town desires to enlarge its bounds, for the people consider themselves rather as tenants than landlords.

They have built over all the country, farmhouses for husbandmen, which are well contrived, and are furnished with all things necessary for country labour. Inhabitants are sent by turns from the cities to dwell in them; no country family has fewer than forty men and women in it, besides two slaves. There is a master and a mistress set over every family; and over thirty families there is a magistrate.
The City of the Sun

The 16th and 17th centuries were a time of geographical and intellectual voyages of exploration and discovery. The Crusaders had ventured east, but Christopher Columbus turned to the west and landed on the Venezuelan coast of South America in 1498. From then on people were eager to hear tales of life in the New World.

Tommaso Campanella (1568-1639) was Italian philosopher and writer. He entered the Dominican order at the age of 15. Campanella held radical views and regularly came up against the authorities, but never left the church.

He wrote his utopia, La città del sole (The City of the Sun) while serving a prison sentence for his radical religious and political views. He had been condemned to life imprisonment for his part in a plot to overthrow oppressive Spanish rule in Calabria. Campanella was also condemned by the Church for his views on astronomy, which supported Copernicus’ theory that the earth is not the centre of the universe.

La città del sole describes imaginary conversations between a Grandmaster of the Knights Hospitallers (a religious military order) and his guest, a sea captain from Genoa. The sea captain describes the City of the Sun as a place where life is shaped by science and religion and all property is communal.

The City of the Sun is governed by men led by reason. Every man’s work contributes to the good of the community. Wealth and poverty do not exist because no one is allowed more than is needed.

Campanella lists the names of the doctors (teachers) who are named after the subjects they teach: Astrologus, Cosmographus, Arithmeticus, Geometra, Historiographus, Poeta, Logicus, Rhetor, Grammaticus, Medicus, Physiologus, Politicus, Moralis

Despite the number of subjects that are taught, they have ‘just one book, which they call Wisdom and in it all the sciences are written with conciseness and marvellous fluency of expression. This they read to the people after the custom of the pythagoreans. It is Wisdom who causes the exterior and interior, the higher and lower walls of the city to be adorned with the finest pictures, and to have all the sciences painted upon them in an admirable manner’.

Mystery and miracle have no place in More’s Utopia, but in Campanella’s vision nature is fully understood and recorded on the concentric walls of the city.
The New Atlantis

Francis Bacon (1561-1626) was an English lawyer, statesman, philosopher, and writer.

Bacon’s utopia, ‘The New Atlantis’ was not published until after his death in 1627. He tells of the discovery of the New Atlantis, a utopian island set beyond both the Old World and New.

Solomon’s House is a research establishment on the island. In Solomon’s House science is a collaborative undertaking, conducted in a rational and impersonal way, for the material benefit of mankind.

The New Atlantis precedes science fiction, a genre of utopian and dystopian writing which deals with the impact of actual or imagined science upon society or individuals.

Bacon describes the various departments and riches of Solomon’s House:

Burials in several earths...high towers, the highest about half a mile in height...great lakes...artificial wells and fountains...large baths for the cure of diseases...orchards and gardens...parks and enclosures...fish pools...bread houses and bake houses...dispensaries or shops of medicines...mechanical arts...furnaces...perspective houses (light)...precious stones...sound-houses...perfume houses...engine houses...a mathematical house...

Bacon imagined research and experimentation into light and, in this passage, appears to describe telescopy, microscopy and film. His description of the engine house is equally far-sighted.

We have also engine-houses, where are prepared engines and instruments for all sorts of motions. There we imitate and practise to make swifter motions than any you have, either out of your muskets or any engine that you have; and to make them and multiply them more easily and with small force, by wheels and other means, and to make them stronger and more violent than yours are, exceeding your greatest cannons and basilisks.

Bacon raises the question of the link between knowledge and power. Knowledge gives people power over others. Bacon’s scientists were depicted as moral paragons but also ordinary humans, and so fallible and open to corruption. This raises questions about how society controls those citizens that have powerful, potentially dangerous, knowledge.
18th century: Revolution

In the 18th century utopian ideas exploded into social and political action. The time had come for social changes and thinkers like Condorcet, Rousseau and Washington provided citizens with the arguments they needed to fight for a better and fairer world.

Utopia is often a secure place in which solutions to the problems of the real world can be imagined or implemented outside the mainstream, and so with minimal disruption to it.

Revolution on the other hand explodes into reality. First in America, then in France, the old order was forced to make way for the new. King George III of Great Britain lost his colonies; King Louis XVI of France lost his head. Ordinary people started to take control of their lives.

The Scientific Utopia - or Dystopia?

The century of the Industrialization gave inspiration for modern Utopias.

Herbert George Wells (1866-1946), an English novelist, journalist, sociologist and historian, had an optimistic view of the benefits that science and technology could offer the human race. His utopia parallels planet earth although many of the problems that afflict humanity on earth are resolved by scientific and political advances.

A worldwide network of transport, industrial and agricultural production ensures that there is plenty for all. A cornucopia of good things has been generated by science and reason. The economy is managed by a state that encourages productivity and discourages greed.

Some of the 20th century scientific utopias after Wells have explored the darker aspects of science and technology. In both Aldous Huxley’s Brave New World and George Orwell’s Nineteen Eighty-four, technology is used to exploit and abuse mankind. In Arthur C Clarke’s 2001 Hal, the space-ship computer, turns against the humans on the ship. Such nightmare visions of societies of the future are often referred to as ‘dystopias’.
19th century earthly Utopias

In the 19th century, at a time of massive industrial growth, Titus Salt, an industrialist and reformer, set up model communities to house the workers his textile mills. These experimental communities are often referred to as social-ist utopias. Salt’s Saltaire, in West Yorkshire was a self-contained community built around textile mills. Workers were given a better quality of life than was available elsewhere.

Saltaire – Titus Salt’s model community in West Yorkshire

Sir Titus Salt was a textile mill owner and one of the largest employers in Bradford. Industrial expansion had caused Bradford to grow massively in the first half of the 19th century. Industry also produced high levels of pollution which caused serious health problems in the local population. Unlike most industrialists Salt was concerned about this damage to health.

In 1848 Salt became mayor of Bradford, and attempted persuade the council to force local factory owners to take measures against the damage they were causing to local health. The council was unwilling to take action and Salt decided to leave Bradford.

In 1850 he announced plans to build a model industrial community called Saltaire at a nearby beauty spot. Saltaire was built in twenty years. Its textile mill was the largest and most modern in Europe. Measures were taken to reduce noise, dust and dirt from the factory floor. Non-polluting smoke burners were used to protect the air quality in the neighbourhood.

The workers were provided with housing, a park, church, school, hospital, library and a range of shops for the workers. Homes were supplied with fresh water and gas and each had an outside toilet. Public baths and wash-houses were built to ensure good sanitation levels.
Rise of the political Utopias

Karl Marx (1818-1883) was a revolutionary German economist and philosopher, and the founder of the Communist movement. Marx was writing against a backdrop of great industrial change. Overcrowded, newly industrialised cities were expanding, and much of the working class lived in great poverty. Marx saw history as the story of class struggles, in which the oppressed fight against their oppressors. According to Marx, as history unfolded, the victory of one class would pave the way for the future freedom of the rest of society.

Marx viewed the unfolding process of history as follows:

- First in ancient and mediaeval society the landed and wealthy had oppressed the slaves and the poorest plebeians and labourers.
- Then, as new technologies were invented and market forces grew stronger, everything changed. The middle classes - gaining wealth and power from trade and manufacture - challenged the power and authority of the old rulers.
- But at this stage a new struggle was formed between the bourgeoisie (the property owning class) and the proletariat (the industrial working class).

Marx argued that the capitalist bourgeoisie mercilessly exploited the proletariat. He recognised that the work carried out by the proletariat created great wealth for the capitalist. The products created in the factory (the material outcome of the workers’ labour) were sold for more than the value of the labour itself i.e. more than the workers’ wages.

Marx believed that capitalism contained the seeds of its own destruction. He described how the wealth of the bourgeoisie depended on the work of the proletariat. Therefore, capitalism requires an underclass. But Marx predicted that the continued exploitation of this underclass would create great resentment. Eventually the proletariat would lead a revolution against the bourgeoisie. The final struggle would lead to the overthrow of capitalism and its supporters.

Following the proletariats’ defeat of capitalism, a new classless society would emerge based on the idea: ‘from each according to his abilities, to each according to his needs’. In such a society, land, industry, labour and wealth would be shared between all people. All people would have the right to an education, and class structures would disappear. Harmony would reign, and the state would simply ‘wither away’.
The modern movement in architecture and industrial design, which emerged in the early 20th century, responded to sweeping changes in technology and society.

A new world of machines and cities forced artists to think anew about their environment, and soon revolutionized the way we perceive, portray, and participate in the world. Modernist ideas have pervaded every form of design, from graphics to architecture, as well as being a key influence on art, literature and music.

Many modern designers insisted that they followed no “style.” And indeed modernism was more than a style, it was a new worldview, conditioned by new perceptions of time and space. But even though there were ways of expressing that worldview, these are the hallmarks of modern design: an interest in exploring new materials, a rejection of historical precedents, and a simplification of forms by a reduction of ornament.

Virginia Woolf famously designated 1910 as the year in which those changes coalesced into a cultural revolution: “in or around December, 1910,” she wrote, “human character changed.”

The ideology of modernism had several sources. One of the earliest was the English artist William Morris, whose writings formed the basis for the arts and crafts movement. Morris advocated a return to well-made, handcrafted goods instead of mass-produced, poor quality machine-made items. In his famous statement, “Have nothing in your house that you do not know to be useful, or believe to be beautiful,” Morris outlined the modern belief that utility was as important as beauty.

Another important figure in this development, and the first great modern architect, was the American Louis Sullivan, who coined the phrase “Form Follows Function.” For Sullivan, functionalism meant the elimination of ornament so the building plainly expressed its purpose, and the principle led to the idea of designing buildings from the inside outwards, letting the essential structure dictate the form and therefore its external appearance.

But by the 1920s, modern designers began to embrace new technologies and the possibility of mass production; the aesthetic of the
machine then became a central theme in modernism. Two figures in particular promoted the language of industry: Walter Gropius and Le Corbusier.

Gropius was the leader of the Bauhaus, the school of art and architecture in Germany. The Bauhaus revolutionized art training by combining the teaching of the pure arts with the study of crafts.

Gropius aimed to unite art with technology, and he educated a new generation of designers and architects to reject historical precedents and adopt the ideology of modern industry. Gropius Bauhaus included Paul Klee, Lyonel Feininger, Wassily Kandinsky, László Moholy-Nagy, and Marcel Breuer.

Le Corbusier, probably the most influential modern architect, introduced a fascination with the designs of engineers, such as grain silos, cruise ships, and automobiles. His radical ideas were given full expression in his 1923 book Vers Une Architecture ("Towards a New Architecture"), an impassioned manifesto. It is still the best-selling architecture book of all time, and it includes Le Corbusier’s famous motto: "A house is a machine for living in."

In the 1930s, many of the leading European modernists emigrated to the United States; thus the theory and practice of Modernism became widespread. The ‘tradition of the new’, as Richard Weston called it, became the dominant mode of progressive artists. What had begun as a cluster of loosely related artistic movements scattered across Europe emerged as the dominant style of the 20th century.
4. The Dystopies of Superstudio

Superstudio’s Critic on the modernist ideologies

Superstudio describes its work.

“In the beginning we designed objects for production, designs to be turned into wood and steel, glass and brick or plastic - then we produced neutral and usable designs, then finally negative utopias, forewarning images of the horrors which architecture was laying in store for us with its scientific methods for the perpetuation of existing models.”

Adolfo Natalini and Cristiano Toraldo di Francia founded in 1966 Superstudio. They had met while studying architecture at the University of Florence. Alessandro and Roberto Magris and Piero Frassinelli joined them later.

The group’s relationship with Florence, where the five founders continued to live after graduation, was critical to its work. “It is the designer who must attempt to re-evaluate his role in the nightmare he helped to conceive, to retread the historical process which inverted the hopes of the modern movement,” pronounced Toraldo di Francia.

“And in Italy, Florence, a town where all such contradictions become most evident (the moment one draws the curtains of mythically misrepresented past) stands historically symbolic.”

Superstudio had been among the most clamorous of the radical design groups which were challenging the modernist orthodoxies that had dominated architectural thinking for decades.

By questioning architecture’s ability to change the world for the better and the boundless faith in technology expressed by earlier, more optimistic groups such as Archigram in the UK, Superstudio raised issues which have preoccupied successive generations of architects and designers from Studio Alchymia in late 1970s Italy and to the Memphis collective in the mid-1980s, to contemporary figures like Rem Koolhaas and Foreign Office Architects. Yet the central theme of Superstudio’s agenda over the next 12
years would be its disillusionment with the modernist ideals that had dominated architectural and design thinking since the early 1900s.

Once fresh and dynamic, by the late 1960s, modernism had hit intellectual stasis. Rather than happily regarding architecture as a benevolent force, the members of Superstudio blamed it for having aggravated the world’s social and environmental problems.

Equally pessimistic about politics, the group developed visionary scenarios in the form of photo-montages, sketches, collages and storyboards of a new ‘Anti-Design’ culture in which everyone is given a sparse, but functional space to live in free from superfluous objects.

Superstudio was not alone in its concerns. The collective emerged in 1966 at the moment when the technocratic optimism of the first half of the 1960s was souring. The watershed was the beginning of the Cultural Revolution in China in 1966 when Mao Tse-tung gave Western intellectuals a new cause to believe in after a decade of disillusion since their faith in communism was shattered by Khrushchev’s exposure of Stalin’s brutalities. Events in China made Western society seem spiritually barren at a time of growing concern about the Vietnam War.

Superstudio’s response was to develop its ‘Anti-Design’ projects: themes from which were echoed in the work of other radical architects and designers, notably the members of Archizoom, a fellow Florentine group consisting of Andrea Branzi, Gilberto Corretti, Paolo Deganello, Dario and Lucia Bartolini and Massimo Morozzi. Both groups were founded in 1966 and their first important project was to express their theories about the crisis of modernism in the Superarchitecture exhibition in Pistoia, Italy. A year later, they refined the ideas aired in Superarchitecture in a joint follow-up show in Modena.

During this period, Superstudio still clung to the conventional wisdom that architecture could be a powerful – and positive – force for progress. By 1968, the group had dismissed this notion as improbably optimistic. The following year Superstudio unveiled The Continuous Monument project in which the apparently endless framework of a black-on-white grid - which was to become the group’s best known motif - extends across the earth’s surface in a critique of what Superstudio saw as the absurdities of contemporary urban
planning. The group created photo-collages to show the grid cloaking the Rocky Coast, Coketown and Manhattan.

In 1970, Superstudio then revived the grid – its “neutral surface” – in a collection of furniture manufactured by the Italian company Zanotta. Designed in stark, geometric forms and covered in the ABET plastic laminate traditionally associated with cheap cafés and 1950s coffee bars, its Quaderna tables, benches and seats were a wry, but functional commentary on political disillusionment.

The group was given another prestigious international forum in 1973 when its work was surveyed in a retrospective exhibition – Fragments From A Personal Museum – at the Neue Galerie in Graz. By then, most of the members of Superstudio were teaching at the University of Florence, where they had met as students. The group remained active – albeit less energetically so – throughout the mid-1970s, only to fold in 1978 when the five founders concurred that they had lost momentum as a collaborative force and that they might be more effective by working independently.

Superstudio’s thinking has proved more enduring than the group itself. Quaderna tables are still in production at Zanotta and Superstudio’s collages and drawings have been acquired for the permanent collections of Centre Georges Pompidou in Paris and the Museum of Modern Art, New York.

Moreover the group’s once radical theories about architecture’s environmental impact, the potentially negative consequences of technology and the inability of politics to untangle complex social problems are now considered to be core concerns by self-aware contemporary architects and designers.
5. Dystopian trends in design at the Milan Furniture Fair 2008

Designing the future in raw, fractured forms
By Alice Rawsthorn
Friday, May 23, 2008

LONDON: Dystopia. Apocalypse. Pandemic. Annihilation. Predictions of doom have darkened our vision of the future for centuries. Think of the grisly horrors threatened in the Book of Revelations, or by Savonarola in late 15th century Italy, and the bleak picture painted by Mary Shelley in her 1826 novel, “The Last Man.” (The title said it all: everyone else had been wiped out by plague.)

Fritz Lang’s “Metropolis,” George Orwell’s “1984” and Andrei Tarkovsky’s “Solaris” were all equally forbidding. It’s easier to find grim depictions of the future, than optimistic ones in 20th century culture, with one exception - design. From the utopian ideals of 1920s and 1930s modernists, to the 1960s sci-fi fantasies of Verner Panton and Joe Colombo, designers have portrayed the future as a dazzlingly seductive place. Even contemporary figures, like Marc Newson, have adopted the visually luscious vision of the future dreamt up in the 1960s - at least they did until recently.

At the Milan Furniture Fair last month, lots of designers - especially the young, experimental ones, whose ideas will soon trickle through to the mass market - seemed very pessimistic. They were preparing for a gruelling future of dwindling resources by making objects in muted colors and staccato shapes, often from found materials. The Spanish designer Nacho Carbonell recycled old newspapers into craggy Evolution seats, shaped like cocoons, where you can literally seek refuge from the stress of daily life. The dominant influence over the more adventurous industrial products in Milan was the angular aesthetic of the German designer Konstantin Grcic, who uses advanced technology to create raw, fractured forms, rather than neo-1960s curves.

It’s easy to see why design has caught a bad case of dystopia. What has nearly a century of modernism achieved? Environmental crisis? A world where 10 percent of us (should) worry about having too much stuff, but the other 90 percent lack the basics? “Young designers realize that the world is in a mess,” explained the designer Tony Dunne, who teaches at the Royal College of Art in London. “They also realize that design can’t save the world, but some don’t
"Outcomes," said Dunne. "Too much positive thinking can be a bad thing, and the urge to only look at the bright side can become a form of denial when things really are going wrong." So wrong that even 1960s futurism has palled. "It's an old, unrealistic vision of a world where humans don't belong, made by us, not for us," Carbonell explained.

What is design's new, realistic view of the future? Carbonell's recycled seat-cum-cocoon is an extreme example, but not the only one. Other young designers have adopted his "survivalist" style of futurism too. The German designer Julia Lohmann spent the Milan fair in a makeshift seaweed laboratory making lampshades from kelp. "I'm exploring its potential as a sustainable design material," she said. "It can replace plastics in a range of applications. If we constantly want new things, we should make them from environmentally friendly materials." At the Design Miami-Basel fair in Switzerland opening on June 2, Lohmann plans to make a brutally futuristic table from a slab of concrete. The same nihilism is visible in the

like the idea of fiddling while Rome burns. Although many designers are embracing dystopia as a style, others are using dark, dystopian design to work through complex and contradictory ideas."

None of the bad news is new, so why did designers cling to optimism for so long? One reason is that the fantasies of 1960s futurists like Colombo and Panton were so compelling. Panton's eponymous S-shaped chair sums up the optimism of the early 1960s, and who wouldn't want to live in one of Colombo's dreamy interiors with their trippy swirls of colors and curves? Chilling though the plots of Stanley Kubrick's 1960s sci-fi movies, "Dr. Strangelove" and "2001: A Space Odyssey" may have been, they made the future look great in Ken Adam's gorgeous sets and Olivier Morgue's sinuous furniture. Newson fell for Kubrick's celluloid futurism as a kid in 1970s Australia, and his reinterpretation of its seductive qualities is a big part of his appeal to "design-art" collectors today.

Another factor is that design is inherently optimistic. Intellectually and commercially, it has been driven by the belief that every problem has a solution, and new usually equals better. "Designers are trained to think about good things, nice ideas, positive outcomes," said Dunne. "Too much positive thinking can be a bad thing, and the urge to only look at the bright side can become a form of denial when things really are going wrong." So wrong that even 1960s futurism has palled. "It's an old, unrealistic vision of a world where humans don't belong, made by us, not for us," Carbonell explained. 

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fractured silhouettes of the concrete Slip stools, made by the young French-born designer Nicolas Le Moigne, and now exhibited at Gallery Libby Sellers in London.

The difference between the old and new takes on futurism is evident in the contrast between that totem of 1960s optimism, the Panton chair, and Grcic’s new MYTO chair. Both are plastic cantilever chairs (without back legs), which defy the laws of physics by deploying the most sophisticated technology of their time. The Panton is smooth, sexy and curvaceous; whereas the MYTO taut, jaggedy and almost aggressive. A decisive factor in the MYTO’s shape was Grcic’s determination to use as little material as possible, not how it would look. “Designers have become more concerned with securing future life on the planet, and less with painting a picture of what it will look like,” he said.

That’s why many young designers are embracing the new school of “critical design” pioneered by Dunne and Fiona Raby, whereby they produce conceptual objects to critique design’s role in our lives, and to foster debate about it, rather than to fulfill practical functions.

Having explored how we’d cope with nuclear disasters and alien abduction in past projects, they’re now assessing the pros and cons of nanotechnology and genetically modified crops.

“These technologies may or may not help us to design our way out of the current mess,” said Dunne. “In order to find out, we need to imagine new possibilities - good and bad - to test out alternative futures before they happen and figure out which ones we want and which we don’t want.”
6. GINA – example for an utopian design

GINA Light Visionary Model, a concept car by BMW

The only constant in the creative world is change. The most thrilling periods in design history are the ones of the greatest change, when designers interpreted shifts in science, technology, behavior and politics for the rest of us. Take the explosion of innovation during the 1920s “machine age” and the 1960s “space age.”

The pace of change is faster than ever today. Advances in technology are accelerating. The environmental crisis is deepening. These changes present designers with doughty challenges and exciting opportunities. So how are they responding?

Ever since the Industrial Revolution, technology has driven developments in design. One of the most seductive recent examples is the GINA Light Visionary Model, a concept car unveiled by BMW. Most concept cars are simply exercises in styling (mostly 1980s sci-fi styling), but GINA is a great example of good old-fashioned lateral design thinking. The designers started from scratch by identifying the best way to build a car using the latest materials and production technologies. The result is a two-seater roadster with a body shaped like an old-school Batmobile, but constructed from just four components, rather than the usual cluster of doors, hood, trunk, roof, wheel arches and so on. This is possible because GINA’s bodywork is not made from traditional metal or plastic, but from super-tough fabric shrouding a metal skeleton.

The fabric is so flexible that it creases when the doors open, and expands or contracts as the metal skeleton is adjusted, thereby changing the car’s shape to suit different driving conditions. The lights are covered by the fabric, with the rear ones shining through it, and the front lights peeping out through eye-shaped slits, just like the hood, which “unzips” to open. BMW isn’t planning to mass-manufacture it, but has incorporated some of GINA’s innovations into production cars, like the Z4 roadster and coupé.

How do you make something good out of something bad? That’s the challenge presented to designers by the environmental crisis. Design is, after all, one of our best hopes of developing new products, systems and networks to help to repair the damage caused already, and to enable us to behave more responsibly in the future. Take GINA’s designers, who didn’t just choose that super-duper fabric because it looks good, but because it enabled them to use less material and energy when manufacturing the car.
7. New inventions from 2004 - 2008

TX Active: Smog-Eating Cement

Courtesy of Italcementi Group
TX Active is a self-cleaning and pollution-mitigating cement developed by the Italian company, Italcementi that can reduce pollution (nitric oxides) by up to 60%. TX Active contains a titanium dioxide based photocatalyzer. Through photocatalysis, the product reduces the maintenance requirements for concrete by destroying most pollutants that causes discoloration. Also, the cement effectively destroys airborne pollutants, which are responsible for pollution. The product can be used for roads, pavements, parking lots, buildings, and anyplace regular cement is being used. This one gets my vote for invention of the year. If we are going to pave paradise, let us at least give paradise a fighting chance to recover.

Sony’s Sugar Battery

Sony

The new bio battery will generate electricity from a sugar solution and will be used to run the 2008 Sony Walkman. The bio battery incorporates an anode consisting of sugar-digesting enzymes and mediator, and a cathode comprising oxygen-reducing enzymes and mediator, either side of a cellophane separator. Through a process of electrochemical reaction, electricity will be generated.

Flying Windmills - Wind Turbines That Harvest the Jet Stream

Sky Windpower

A San Diego company, Sky Windpower has invented flying wind turbines to be used in high-altitudes. The company estimates that just 1% of the energy from the jet stream could satisfy the energy demands of the entire planet. Sky Windpower’s Bryan Roberts has long been convinced that high altitude wind energy can be captured. He has demonstrated that Flying Electric Generator(FEG) technology is practical and should work at high altitudes - this is the “Flying Windmills” technology.
Icopod

These stylish shelters were a big hit at the Burning Man festival this summer, but they're not just for fun. Fashioned from a single piece of laminated paperboard (plus a floor and a door), they are sturdy, wind resistant, waterproof, well insulated and require no special skills or tools to assemble — perfect, according to their inventor, for use as temporary housing in a war or a natural disaster. The Shade Pod, an open-air version with legs, is just right for lawn parties.

WATER PURIFIER

At this point Dean Kamen is used to being called naive. "I’m getting neurotic about people overhyping things," he says, "so let me tell you what it doesn’t do." Kamen’s caution is understandable. He invented the overpublicized, under-performing superscooter known as the Segway—and was responsible for some of that hype. So when it comes to his latest invention, a low-cost, low-power water purifier designed for the Third World, he wants to be clear: he has no idea how to market it or get it to the people who need it. He just knows it works.

What it does is simple. A few years ago, Kamen was working on an electric generator for use in underdeveloped villages when he noticed that it produced about 1,000 watts of waste heat. Kamen decided to try to use that heat to make clean water. There are 6,000 deaths from contaminated water every day, according to the U.N., and safe water is one of the world’s more urgent problems. Kamen’s device uses that extra heat to distill water—boil it and condense it.

Nothing new about that— Kamen has invented lots of things, but he didn’t invent distillation. The trick is to do it using as little energy as possible. However, 1,000 watts of heat won’t boil much water, so Kamen developed a closed system, powered by whatever fuel is at hand, that traps the energy released when the boiled water vapor recondenses. Essentially, he’s recycling heat. Result: a low-power, low-maintenance device that will cost around $1,000 to manufacture and makes 10 gal. of drinkable water an hour.

Kamen knows major health organizations probably won’t buy into unproved technology, so he’s taking his invention on the road. He’s exploring distribution strategies in Bangladesh, and later this month he’ll head to Africa to meet with Rwanda’s President.
He knows he has a lot to prove. “I have no credibility,” he admits. “We have to get them in the field and document that they work.” He believes, perhaps innocently, that he can save a lot of lives. Sometimes when you want to change the world, it helps to be a little naive.

**Aerogel**

A new substance called aerogel, invented in the 1930s but recently refined by NASA, has been certified as the lightest solid in the world — yes, it’s in the Guinness Book of World Records. Weighing in at a mere .00011 lbs. per cu. in. (thin air weighs about .00004 lbs. per cu. in.), aerogel resembles smoke that has been frozen into place — it’s cloudy, translucent and virtually weightless. It’s also surprisingly tough. Chemically similar to glass, aerogel is used on the space shuttle to trap tiny spaceborne particles traveling at high speed so they can be brought back to Earth for analysis.

**MAGIC MATERIAL**

**LiTraCon**

Inventor: LiTraCon  
Availability: Now, $1,828 per cu. ft.  
To Learn More: litracon.com

Mixing glass with cement may seem strange, but that is what Aron Losonczi, a Hungarian architect, has done to create a transparent concrete called LiTraCon. Glass in the form of fiber optics allows light to filter through the material, creating a surreal effect. Available in sheets 2 in. or more wide, LiTraCon is as strong as regular concrete and can be used for walls, flooring or sculpture. It is on display at the National Building Museum in Washington through Jan. 23.
Solar Skin

Imagine a solar panel so thin it can’t exist apart from the building material it’s printed on. HelioVolt didn’t invent copper indium gallium selenide, a thin film used to generate electricity from sunlight, but it did develop a faster, more cost-effective way to manufacture it for use in large commercial spaces. The new process involves printing a fine layer of semiconductor directly onto glass, metal and other building materials so that new skyscrapers can go up solar power-ready from day one.

Imagine printing on every available and suitable surface such a solar skin?! You could produce energy for your e.g. mp3 player!

Nanosolar Powersheet

Imagine a solar panel without the panel. Just a coating, thin as a layer of paint, that takes light and converts it to electricity. From there, you can picture roof shingles with solar cells built inside and window coatings that seem to suck power from the air. Consider solar-powered buildings stretching not just across sunny Southern California, but through China and India and Kenya as well, because even in those countries, going solar will be cheaper than burning coal. That’s the promise of thin-film solar cells: solar power that’s ubiquitous because it’s cheap. The basic technology has been around for decades, but this year, Silicon Valley–based Nanosolar created the manufacturing technology that could make that promise a reality.

The company produces its PowerSheet solar cells with printing-press-style machines that set down a layer of solar-absorbing nano-ink onto metal sheets as thin as aluminum foil, so the panels can be made for about a tenth of what current panels cost and at a rate of several hundred feet per minute. With backing from Google’s founders and $20 million from the U.S. Department of Energy, Nanosolar’s first commercial cells rolled off the presses this year.

Cost has always been one of solar’s biggest problems. Traditional solar cells require silicon, and silicon is an expensive commodity (exacerbated currently by a global silicon shortage). What’s more, says Peter Harrop, chairman of electronics consulting firm IDTechEx, “it has to be put on glass, so it’s heavy, dangerous,
expensive to ship and expensive to install because it has to be mounted.” And up to 70 percent of the silicon gets wasted in the manufacturing process. That means even the cheapest solar panels cost about $3 per watt of energy they go on to produce. To compete with coal, that figure has to shrink to just $1 per watt.

Nanosolar’s cells use no silicon, and the company’s manufacturing process allows it to create cells that are as efficient as most commercial cells for as little as 30 cents a watt. “You’re talking about printing rolls of the stuff—printing it on the roofs of 18-wheeler trailers, printing it on garages, printing it wherever you want it,” says Dan Kammen, founding director of the Renewable and Appropriate Energy Laboratory at the University of California at Berkeley. “It really is quite a big deal in terms of altering the way we think about solar and in inherently altering the economics of solar.”

In San Jose, Nanosolar has built what will soon be the world’s largest solar-panel manufacturing facility. CEO Martin Ro-scheisen claims that once full production starts early next year, it will create 430 megawatts’ worth of solar cells a year—more than the combined total of every other solar plant in the U.S. The first 100,000 cells will be shipped to Europe, where a consortium will be building a 1.4-megawatt power plant next year.

Right now, the biggest question for Nanosolar is not if its products can work, but rather if it can make enough of them. California, for instance, recently launched the Million Solar Roofs initiative, which will provide tax breaks and rebates to encourage the installation of 100,000 solar roofs per year, every year, for 10 consecutive years (the state currently has 30,000 solar roofs). The company is ready for the solar boom. “Most important,” Harrop says, “Nanosolar is putting down factories instead of blathering to the press and doing endless experiments. These guys are getting on with it, and that is impressive.” nanosolar.com —Michael Moyer
Metabolix

E. coli-made plastic

Every year, 350 billion tons of plastic ends up in landfills. Mirel is the first biodegradable plastic that is as strong and versatile as common petroleum-based polymers and will break down in soil, compost, wetlands or oceans. It’s made with E. coli microbes that have been genetically engineered to eat corn sugar and turn it into polyester granules, which Metabolix extracts and forms into moldable pellets. Among the first commercial products: gift cards for Target. metabolix.com

WaterSaver Technologies Aqus System

Guilt - free flushing

About 40 percent of freshwater coming into the average home is used just to flush the toilet. When tucked inside the cabinet below the bathroom sink, the Aqus system cuts that number significantly. Instead of using freshwater to flush, it catches the water that goes down your sink drain, filtering and disinfecting it and then quietly pumping it to your toilet tank. (The recycled water is even safe for toilet-slurping pets.) When there’s not enough wastewater for a flush, Aqus pulls from your plumbing. The system saves up to 14 gallons a day in a two-person house. $295; watersavertech.com
Extraction of water from air (EWA)

One square kilometer of atmospheric air contains, in most regions around the globe, 10,000 to 30,000 m$^3$ of pure water. The extraction of water from air (EWA) patented technology, based on the extraction of air humidity into water stream, was developed for large-scale water supply, up to 1,000 m$^3$/d. Such as desalination, using the unlimited free source of salty water, the EWA technology makes use of air humidity. The EWA technology could serve as an alternative solution for water supply, where neither salty water, nor infrastructure is available. The EWA technology extracts the air humidity by a three stage process: absorption of humidity on a solid desiccant, desorption of the water to vapor at moderate heat (65–85°C) and condensation with passive condenser connected to a heat pump. The moderate heating enables the utilization of environmentally friendly and low cost heat energy, such as solar or waste heat. The combination of moderate heat, passive condenser and heat pump allows producing water with low energy consumption of 100–150 kcal/l.

The EWA technology is based on a multi-cycle regime, each cycle lasts about 90 min with absorption/desorption ratio of 2:1. The EWA technology is made of modular cassettes enabling a design of a device for any required capacity — up to 1,000 m$^3$/d. The EWA technology could be operated at ambient temperature range between 5–115°C and at relative humidity of 20% and more, while at relative humidity of 60% the system achieves its maximal capacity. The EWA technology may provide a reasonable solution for water supply in dry regions, including South Mediterranean countries, as well as countries suffering from polluted water, including tropical countries, and far from the seashores where long-pipe systems are not available, the EWA technology would present the excellent solution for fresh water.

http://www.alternate-energy-sources.com/Whisson-windmill.html
8. Future scenarios by the experts from „Forum for the Future“

„The World in the year 2030“

1. Optimistic „Utopia“

- Artificial modified / produced meat for million people
- Solar electricity for seawater
- Desalination plant change the Sahara into a fertile landscape
- Nanotechnology: „intelligent dust“ - you can observe the environment in realtime to avoid catastrophies

2. The service revolution

- The carbon (CO2) emission is very expensive = economy is based on services instead of industry
- People are taking the cycle instead of the car to be more efficient: economics has become more socialised
- More people use together i.e. Washing machines or cars because these things has become exorbitant:
  - Car sharing;
  - Washing salons

- Negative:
  - Still inhabitable areas like in central Asia or the US state Oklahoma will be abandoned because of water deficiency

3. The redefining of progress

- A social utopia
- Because of the global depressions in 2009 until 2018, people in the industrialized world apply a modest lifestyle
- People focus on the individual feel-good mood -> achieving life quality is more important
- In the US people work 25 hours in the week and 10 hours work charity for the community
- working our directive in the EU - work only 27,5 hours
ranking which country has the best „feel – good – index
- authors of the essay: „this is not a postcapitalistic world people
just change how they evaluate money, they will still work, consume
and make profits

4. The economy of the environmental war

- in this scenario the authors describe a world which has reacted
to late on the climate change
- no Kyoto protocoll settlement, each state follow their own interests - the world trade has collapsed
- the oil price is over 400 dollars the barrel
- the ones who are spending too much electricity will be cut off
from the network - by that way the carbon-emissions will decrease
slowly in 2030 - because of hard personals restrictions
- in some countries couples are only allowed to have children with a
credit system, that means that climate friendly behaviour will give
extra points
- in some states its against the law to deny the human-caused cli-
mate change
- the catastrophal consequences of the collapse of the environment
has brought with it a big migration to i.e. The antarctica
- prognosis paint a picture of 3,5 million people in the year 2040

5. The protectionistic world

- globalisation is on the retraet
- there will be conflicts and wars about ressources
- middle east: war about the drink water -> biological and chemical
war
- the consequences are radical protectionism: everyone is trying to
safe all they have
- prices are increasing
- the commerce gets aggravated
- starvation and climate change induced diseases kills millions
- because of the fear of disease – outbrakes are borders closed
(movie: “Children of men”)
9. Forecast by the futurist Dr. Michio Kaku

Leading theoretical physicist and futurist Dr Michio Kaku explores the cutting edge of science of today, tomorrow, and beyond. He argues that humankind is at a turning point in history. In this century, we are going to make the historic transition from the ‘Age of Discovery’ to the ‘Age of Mastery’, a period in which we will move from being passive observers of nature to its active choreographers. This will give us not only unparalleled possibilities but also great responsibilities.

The intelligence Revolution

Kaku explains how artificial intelligence will revolutionise homes, workplaces and lifestyles, and how virtual worlds will become so realistic that they will rival the physical world. Robots with human-level intelligence may finally become a reality, and in the ultimate stage of mastery, we’ll even be able to merge our minds with machine intelligence.

The biotech revolution

Genetics and biotechnology promise a future of unprecedented health and longevity: DNA screening could prevent many diseases, gene therapy could cure them and, thanks to lab-grown organs, the human body could be repaired as easily as a car, with spare parts readily available. Ultimately, the ageing process itself could be slowed down or even halted.

But what impact will this have on who we are and how we will live? And, with our mastery of the genome, will the human race end up in a world divided by genetic apartheid?

The quantum revolution

The quantum revolution could turn many ideas of science fiction into science fact - from metamaterials with mind-boggling properties like invisibility through limitless quantum energy and room temperature superconductors to Arthur C Clarke’s space elevator. Some scientists even forecast that in the latter half of the century everybody will have a personal fabricator that re-arranges molecules to produce everything from almost anything.

Yet how will we ultimately use our mastery of matter? Will we have the wisdom to match our technology?
10. Årets hetaste energitrender - småskalighet och smarta elnät

Publicerad 13 januari 2009

Av: Jonas Halen

Först oljekris sedan finanskris. Men de långsiktiga energitrenderna är ökningen av förnybara energikällor, småskalighet och satsningen på smarta elnät som ska ta hand om den nya energin.

Efter vind kommer sol. Både småskaliga takpaneler och stora industriella solpanelsanläggningar.

Hur ska elen från de nya energikällorna tas om hand? Dagens elnät är dåligt anpassade så varierande elproduktion som vindkraft och solenergi.

Finanskrisen och priset på olja gjorde att energisektorn åkte berg- och dalbana förra året. Men inte minst i Asien blev 2008 ett starkt år för förnybar energi och energieffektivisering.


Den här gången är det teknikkonsulenten och marknadsföraren Bruno De Wachter som listar de 10 viktigaste energitrenderna förra året.


Passive house

The term passive house (Passivhaus in German) refers to the rigorous, voluntary, Passivhaus standard for energy efficiency in buildings. It results in ultra-low energy buildings that require little energy for space heating or cooling. A similar standard, MINERGIE-P, is used in Switzerland. The standard is not confined only to residential properties; several office buildings, schools, kindergartens and a supermarket have also been constructed to the standard. Passive design is not the attachment or supplement of architectural design, but an integrated design process with the architectural design. Although it is mostly applied to new buildings, it has also been used for refurbishments.

There are now an estimated 15,000 passive houses around the world, the vast majority built in the past few years in German-speaking countries or Scandinavia.

Since the first Passivhaus was built in German in 1990 there are now about 20,000 Passivhaus buildings across Europe (as of January 23, 2009).

History

The Passive House standard originated from a conversation in May 1988 between Professors Bo Adamson of Lund University, Sweden, and Wolfgang Feist of the Institut für Wohnen und Umwelt (Institute for Housing and the Environment). Their concept was developed through a number of research projects, aided by financial assistance from the German state of Hesse. The eventual building of four row houses (also known as terraced houses or town homes) was designed for four private clients by architects professor Bott, Ridder and Westermeyer.

The first Passivhaus buildings were built in Darmstadt, Germany, in 1990, and occupied the following year. In September 1996 the Passivhaus-Institut was founded in Darmstadt to promote and control the standard. Since then, thousands of Passive Houses have been built, to an estimate of 15,000 currently most of them in Germany and Austria, with others in various countries world-wide.

After the concept had been validated at Darmstadt, with space heating 90% less than required for a standard new building of the
time, the ‘Economical Passive Houses Working Group’ was created in 1996. This developed the planning package and initiated the production of the novel components that had been used, notably the windows and the high-efficiency ventilation systems. Meanwhile further passive houses were built in Stuttgart (1993), Naumburg, Hesse, Wiesbaden, and Cologne (1997).

The products developed for the Passivhaus were further commercialised during and following the European Union sponsored CE-PHEUS project, which proved the concept in 5 European countries over the winter of 2000-2001. In North America the first Passivhaus was built in Urbana, Illinois in 2003, and the first to be certified was built at Waldsee, Minnesota, in 2006.

Standard

While some techniques and technologies were specifically developed for the Passive House standard, others (such as superinsulation) were already in existence, and the concept of passive solar building design dates back to antiquity. There was also experience from other low-energy building standards, notably the German Niedrigenergiehaus (low-energy house) standard, as well as from buildings constructed to the demanding energy codes of Sweden and Denmark.

The Passivhaus standard for central Europe requires that the building fulfills the following requirements:

* The building must not use more than 15 kWh/m² per year (4746 btu/ft² per year) in heating and cooling energy.
* Total energy consumption (energy for heating, hot water and electricity) must not be more than 42 kWh/m² per year [13]
* Total primary energy (source energy for electricity and etc.) consumption (primary energy for heating, hot water and electricity) must not be more than 120 kWh/m² per year (3.79 × 104 btu/ft² per year)

Recommended:

* With the building de-pressurised to 50 Pa (N/m²) below atmospheric pressure by a blower door, the building must not leak more air than 0.6 times the house volume per hour (n50 ≤ 0.6 / hour).
* Further, the specific heat load for the heating source at design
11. Conclusion of the research and definition of further proceeding

The research and study about Utopias/Dystopias, future scenarios and innovations evokes pictures and imaginations of the world of tomorrow in me.

In utopias and dystopias the significant elements of society and life are extrapolated, bold and very strongshaped in their expression. Dystopias are dehumanized places, where the construction of the infrastructure and the living area is functional, durable, but without personality.

Therefore I now develop my own utopian world, a place where man takes care of today’s and the future’s problems in new ways. The promise of a better place appeared to me - with the application of modern materials and technical solutions.

I ask myself: How will landscapes, infrastructures, buildings, interiors, furniture and products look like, when man dares to “form” them with the knowledge of visionary innovations?

My aim is to create a positive future scenario with the possibilities of todays and tomorrows solutions.

My Utopia

In my definition of utopia, living in a community means using and experiencing the nature without destroying it. Basic needs like shelter, warmth, water, food are met, but also conveniences of a modern life with internet, car, modern living, travelling and freedom are offered.

The houses in the utopian community

I want the houses to be new in the design and construction, exciting in the room division and constructed with innovative materials and functions. When designing the utopian shelter, I allow myself to mix various innovations, as well as to mix new and sustainable materials.

Another challenge is to make visible the infrastructure of the energies which we use all the time but are invisible in wall structures and apparatus. If important processes, functions and forces are consciously experienced and thereby intelligible, it will change our perception of how we utilize our finite ressources (electricity, gas, water, etc). Sometimes it is necessary to change perspective, expression and shapes of things in order to change human behaviour towards them.

Further proceeding

Solar energy structures

I will experiment with “solar skin” in combination with textiles.

My intention is to give solar energy a new appearance.

Water recovery

The “water from air extraction” technology is a revolutionary solution and a challenge to use it in a bigger scale e.g. in a landscape. It could be very exciting to design the an installation of how the water flows and get used through living area and landscape.
Maslow’s Hierarchy of Needs

Maslow’s pyramid shows which are the most basic needs. The design of the utopian landscape should consider these needs, so I will work with the requirement of water, shelter and energy.
The shelter as an utopian landscape

Verner Pantons Visiona 2 is a inspiration for the design of my utopian structures because it symbolises the human need for warmth, cosy ambient and safety. It evokes pictures of a special “body interior” - the cervix.
SKETCH AND MODEL STUDIES
“Through the wall”
Appearances of water movement
Electricity
The need for a shelter / protection against the outside
Sketches fountain
Sketches house
Sketches solarleafs
to much shade

a problem from the front and side

steep: stage

bend: more

to one: fit flexible table

Pendulum Site Location

Pendulum Site Location

Rental on the...
1. Definition of the finale project

What would we do in a utopian society when facing the environmental concerns?

In an ideal society we would not use and modify resources from the atmosphere, biosphere and the lithosphere thoughtlessly. By making decisions of how we use materials and resources like water and oil we have an impact on the wellbeing of future citizens. It is therefore very important to take the time for developing a plan of producing water and electricity without emitting CO2 or waste as byproduct.

A solution would be to start using more alternative energy sources as e.g. solar energy.

Because clean water is a scarce resource in many countries it is interesting to focus on where we get water from. The rivers and glaciers are a common water source, but in many countries it is very difficult to extract potable water due to contaminations with bacteria.

Martin Grimheden, a machine designer at KTH is currently developing a “water from the air extractor” which can extract ambience water even in regions with low humidity.

The military of the U.S. is already using “atmospheric water generators” in desert regions. The water generator machine extends over a ca 20 m2 area.

The “Atmospheric water generator” park. The machine is constructed as a sculpture in the landscape. The highest point reaches 6 meters. Inside the sculpture is water extracted from air and purified. The terraces can be used in different ways. People can have picnics there in the summertime. The energy for the generator is procured by solar - wings which are scattered in the landscape and the terraces of the machine.

The self-sustaining community

This model community consists of 60 houses.

The center of this community is the fountain which provides the public with purified water extracted from the surrounding air. The waterpipes are in comparison with conventional systems above the earth, not underground. There is a reason for that: By exposing the infrastructure of the waterpipes I believe that the citizens of the community will become more aware of the use of water.

The water structures intersect the public landscape in an visible way.

Indoors the water from the AWG is used in a first cycle in washing machines, dishwashers, as cooking and drinking water. This so-called greywater will then be reused as toilet water. Contaminated water from the toilet - “blackwater” will be collected and treated outside the community living area in botanical cells or biogas plants. The product can serve as fertilizer for plantations.

The above described water cycle system does not produce waste material which can contaminate the biosphere.
The Hydrologic Cycle

- condensation
- transport
- precipitation
- snowmelt runoff
- infiltration into groundwater
- groundwater flow
- evaporation
- plant uptake
- transpiration
Water from air extraction principle

It takes warm moist air from the outdoors, condenses it to generate water. It's carbon-filtered and purified with ultraviolet light.

fan

condenses it

to generate water

it's carbon-filtered

purified with ultraviolet light
The Water Cycle in the Passive Houses

The fountain distributes clean water – extracted from the atmosphere – to the nearby households. The water is there used for drinking, cooking, washing and showering.

Afterwards, the so-called grey water will be treated in botanical cells situated in the house garden. After the treatment, the water is still clean enough for flushing the toilet. This is then the second time the same amount of water is used.

The community botanical cells decontaminate the water through the ancient "wetland" concept. The cycle closes here. The processed water is used as fertilizer for plantations.

In total, the water is used two times in the households, as well as enabling production of fertilizers and biogas. The biogas can in itself be used for heating, cooking and even electricity generation.

Why Extract Water From the Atmosphere

The water, in form of humidity in the atmosphere is a renewable resource. Scientists have shown that the amount of humidity is not equally distributed across the globe and across atmospheric layers. There are atmospheric regions that have a similar volume of water stored, as the Amazonas river.

The Self-Sufficient Community as a Human Body

The fountain stands for the mouth, heart and lungs of the human body. Instead of extracting oxygen from the atmosphere, the fountain inhales air and extracts its humidity. The water extracted in this fashion is pumped in to the houses (the cells). There, the water is used for basic needs (drinking, cooking) and for maintaining hygienic standards (washing, bathing, WC flushing). The sewage byproduct leaves the cell to be treated in another organ, the kidney (botanical cell). Part of the sewage is sent to biogas.

Interaction with energies

Solar leaves

With the innovation of putting solar cells on paperthin foil it is possible to apply them on nearly every surface.

The new generation of solar energy is much more efficient. That's why it will be in the future not necessary to keep the solar panels in their typical rectangular form.

The solar leaves are distorted in the center. Such a leaf is composed of two layers of solarfoil held together by a steel spine.

The solar leaves have different sizes, depending on the intention. The sizes are 2 meter, 1 meter and 50 cm. The smaller leaves can be connected to each other on the spine. Different 3 dimensional structures can be constructed in that way.

The solar leaves has to be put in certain junctions, situated on the ground. These junctions are connected to an electrical conduction forming a grid, 10 cm under the earth. This grid is composed as a modular system, by that way it is developable in the x- and y - direction. The grid is connected to the electricity grid of the AWG and to the 60 houses of the community.

The solar leaves are easy to integrate into the landscape. Using a flexible gridsystem the leaves can absorb solar energy wherever placed. The solar leaf has a joint which allows the element to be installed in 4 directions.

The solar leaf surface has a layer partly reflecting the surrounding colours and structures. Because of its twisted shape the solar leaf appears as light as a feather and doesn't block the view of the landscape.

Light sensible sensors detect twilight, which activates LEDs. The LEDs are placed behind a half transparent plastic sheet in the spine structure of the leaf.

The energy for the LEDs is supplied by the solar cells itself. The LEDs function as position markers for the solar leaves, so that people and animals will notice them in the dark.
The solarleafs in the landscape
The Solarleafs give electricity into the grid and to the fountain.
The fountain
The whole system: the solarleafs supply the fountain with energy
landscape model 1:200

UTOPIA / DYSTOPIA
A FUTURE SCENARIO
detail model fountain and solarleafs 1:50
solarleafs 1:1
Passive House article in the International Herald Tribune, Published: December 29, 2008

Passive houses guard against waste of heat energy

DARMSTADT, Germany: From the outside, there is nothing unusual about the stylish new gray-and-orange row houses in the Kranichstein district here, with wreaths on the doors and Christmas lights twinkling through a freezing drizzle.

But these houses are part of a revolution: Though the ground around them is frozen, they are toasty-warm inside, even though they are not using any heating. No drafts. No cold tile floors. No snuggling under blankets while the furnace kicks in.

In Berthold Kaufmann’s house, there is, to be fair, one radiator for emergency backup in the living room, but it is not in use. Indeed, even on the very coldest nights, Kaufmann’s new “passive house” - and others of this design - can get all the heat and hot water they need from the amount of energy used to run a hair dryer.

“You don’t think about temperature - the house just adjusts,” said Kaufmann, watching his 2-year-old daughter, dressed in a T-shirt, tuck into her sausage in the spacious living room, whose soaring glass doors give way to a patio. His new home uses about one-twentieth the heating energy of his parents’ home, which is the same size, he said.

In attempts to meet new energy-efficiency standards, architects all over the world are designing more sustainable homes using better insulation and high-efficiency appliances, as well as tapping into new sources of power, like solar panels and wind turbines - the icons of the green building.

The passive house concept, pioneered in this small town outside of Frankfurt, approaches the challenge from a different angle: Using ultra-thick insulation and complex doors and windows, passive-house architects engineer homes that are effectively encased in an airtight shell so that heat never escapes and the cold outside never seeps in.

As such, passive houses can be warmed by their occupants’ bodies, the heat from appliances and the sun.

Decades ago, attempts at creating sealed solar-heated homes failed because of stagnant air and mold, for example. But at the heart of each new passive house is an ingenious central ventilation system. The warm air going out passes side-by-side with clean cold air coming in, exchanging heat with 90 percent efficiency.

“The myth before was that to be warm you had to have heating. Our goal is to create a warm house without energy demand,” said Wolfgang Hasper, an engineer at the Passivhaus Institut here in Darmstadt. “This is not about wearing thick pullovers, turning the thermostat down and putting up with drafts. It’s about being comfortable with less energy input, and we do this by recycling heating.”

There are now an estimated 15,000 passive houses worldwide, the vast majority built in the past few years and almost all of them in German-speaking countries or Scandinavia. The first passive home was built here in 1991 by Wolfgang Feist, a local architect, but diffusion of the idea was slowed by language. The courses and literature were mostly in German, the parts still only mass-produced in this part of the world.

There is now a thriving passive-house building industry in Germany - new schools in Frankfurt are built with the technique - and it is spreading. The European Commission, the European Union’s executive body, is promoting passive house building, and the European Parliament proposed that new buildings should meet passive-house standards by 2011. The U.S. Army, long a presence in this part of Germany, is considering passive-house barracks.

“Awareness is skyrocketing; its hard for us to keep up with requests,” Hasper said.

Nabih Tahan, an architect who worked in Austria for 11 years, is completing one of the first passive house for his family in Berkeley, California, and heads a group of 70 Bay Area architects and engineers to encourage adoption of the standard.

“This is a recipe for energy that makes sense to people - why not reuse this heat you get for free?” he said.

But ironically, when California inspectors came to assess whether the house met green building codes (it did) he could not get credit for the heat exchanger, a device unknown in the United States.

“A house that is certified hermetically sealed may understandably sound a bit suffocating. (To meet the standard, buildings undergo a "blow test" to show that it loses minimal air under pressure.) In fact, there are plenty of windows - though far more facing south than north - and all can be opened.

Inside, passive homes are slightly different from conventional houses, just as electric cars drive differently than their gas cousins. There is a kind of spaceship-like uniformity of air and temperature,
with all the air from the outside going through high-efficiency filters before entering the rooms. The concrete floor of the basement is not cold. The walls and the air are basically the same temperature.

Look closer and there are technical differences: When the windows are swung open, their layers of glass and gas are visible, as are the elaborate seals around the edges. A small grated duct near the ceiling in the living room brings in clean air. In the basement there is no furnace but instead what looks like a giant Styrofoam cooler, containing the heat exchanger.

Though passive houses need no human tinkering, most architects put in a switch with three settings that can be turned down for vacations or up for circulating air for a party - though window could also just be opened.

“We’ve found it’s very important to people that they feel they can influence the system,” Hasper said.

It may be too radical for those nostalgic about drinking hot chocolate in a cold kitchen. But not for others.

“I grew up in a great old house that was always 10 degrees too cold, so I knew I wanted to make something different,” said Georg Zielke, who built his first passive house here, for his family, in 2003 and now designs nothing else.

Passive houses cost about 5 to 7 percent more than conventional houses to build, but with growing popularity and an ever-larger array of attractive off-the-shelf components, the buildings have become cheaper.

Feist’s original passive house, a boxy white building with four flats, looks like the science project that it was intended to be. But new passive houses come in many shapes and styles. (Feist still calls the house home, though he spends much of his time in Austria, where he now teaches.) The Passivhaus Institut, which he founded a decade ago, continues research, teaches architects and tests homes to make sure they meet standards. It now has affiliates in Britain in the United States.

Still, there are challenges.

Because a successful passive house requires interplay between the house, the sun and the climate, architects need to be careful about site selection. Passive-house heating might not work in a small shady valley in Switzerland, for example, or on an urban street with no south-facing wall. Researchers are now looking into whether the concept will work in warmer climates, as well, where a heat exchanger could be used to keep cool air in and warm air out.

Most important, those who want passive-house mansions may be disappointed. Compact shapes are simpler to seal; sprawling homes are too hard to insulate and heat. Most passive houses allow 50 square meters, or 540 square feet, per person, a comfortable though not luxurious living space.

“It doesn’t make sense to heat 1,000 square meters for just one person,” Hasper said, reflecting: “Anyone who feels they need that much space to live - well, that’s a different discussion.”

ZUKUNFTSSZENARIEN

So sieht die Welt im Jahr 2030 aus

Klimaflüchtlinge retten sich in die Antarktis, Seuchen raffen Millionen dahin, jeder Staat kämpft nur noch ums eigene Überleben. So könnte die Welt 2030 aussehen, warnen Experten in einer neuen Studie. Sie halten aber auch positive Szenarien für möglich - in denen die Sahara zur Oase wird.


In ihrem Bericht “Climate Futures” entwerfen die Experten fünf Szenarien. In jedem reagiert die Menschheit anders auf die Herausforderungen durch den Klimawandel.

Die Verfasser haben rund 70 Experten befragt und in Workshops einbezogen, darunter Ökonomen und Sozialwissenschaftler, Journalisten, Umweltaktivisten und Politiker. Neben Warnungen vor dem Klima-Kollaps enthält das Dokument auch positive Ausblicke, die sich abheben von den bekannten Katastrophenszenarien. Definitive Antworten gebe das 76-Seiten-Papier nicht, schreiben die Autoren selbst - „aber wir können mögliche Antworten erforschen und uns auf ein breites Spektrum von Möglichkeiten vorbereiten.”

SPIEGEL ONLINE stellt die fünf Szenarien für 2030 vor:

Rettung durch Effizienz


Was müssen wir für Klimaschutz aufgeben?

Auch die immer größer werdenden Bedürfnisse der rund acht Milliarden Menschen, die im Jahr 2030 die Erde bevölkern, können durch innovative Geschäftsmodelle und technologische Mittel befriedigt werden. So ist in dem Bericht die Rede davon, dass künstlich hergestelltes Fleisch Hunderte Millionen Menschen ernähren könnte.

Mit Solarstrom betriebene Meerwasser-Entsalzungsanlagen verwandeln die Sahara in eine fruchtbare Landschaft. Die Nanotechnologie hat zur Entwicklung von “schlauem Staub” geführt, mit dem sich die Umwelt in Echtzeit überwachen lässt, um Katastrophen zu verhindern.

Die Dienstleistungs-Revolution

Auch hier geht am Ende alles relativ gut aus. Allerdings dank etwas robusterer Methoden.


Die Neudefinition von Fortschritt

Dieses Szenario ähnelt eher einer sozialen Utopie, die aus wirtschaftlicher Not geboren wird. Die globale Depression von 2009 bis 2018 hat den Menschen insbesondere in den Industrieländern einen bescheideneren Lebensstil aufgezwungen, so dass man sich
nun stärker auf den persönlichen Wohlfühlfaktor und die Lebenssqualität besinnt. In den USA arbeiten die Menschen üblicherweise 25 Stunden pro Woche für sich selbst und zehn weitere freiwillig für ihre Gemeinden.


Die Wirtschaft des Umwelt-Kriegs

In diesem Szenario beschreiben die Experten “eine Welt, die verspätet auf den Klimawandel reagiert”. Die Verhandlungen über ein Nachfolgeabkommen für das Kyoto-Protokoll sind gescheitert, so dass einzelne Weltregionen lieber ihre eigenen Interessen verfolgen haben. Der Welthandel ist weitgehend zusammengebrochen; der Ölpreis liegt über 400 Dollar pro Barrel. Wer in seinem Haushalt zu viel Strom verbraucht, wird vom Netz abgeklemmt. So sinken ab 2030 die Treibhausgasemissionen langsam - allerdings zum Preis drastisch eingeschränkter persönlicher Freiheiten.

In manchen Ländern dürfen Paare nur dann Kinder bekommen, wenn sie zuvor anhand eines Punktesystems eine entsprechende Lizenz erworben haben. Klimafreundliches Verhalten gibt Extra punkte.

In anderen Staaten ist es ein Verbrechen, den vom Menschen verursachten Klimawandel zu leugnen.

Die katastrophalen Folgen des Umweltkollapses haben zu ge waltiger Migration geführt. Selbst die Antarktis ist das Ziel von Flüchtlingsströmen - Prognosen gehen von 3,5 Millionen Menschen am Südpol im Jahr 2040 aus.

Die protektionistische Welt


Die Folge ist radikaler Protektionismus: Jeder versucht, das zu retten, was er hat. Die Preise steigen, der Handel wird erschwert, Hunger und vom Klimawandel verstärkte Seuchen raffen Millionen dahin. Aus Angst vor einer Verbreitung der Krankheiten sind nahezu alle Grenzen verriegelt.


mbe/Reuters
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