

Heroic Attempts to Start from Scratch: The Role of Experiments in Architecture towards a Regenerative Society

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I would like to begin with a quote from the Dutch poet and novelist Cees Nootboom, who, in his 2018 novel *Venice: The Lion, the City and the Water*, wrote: 'History has no purpose, only consequences.'¹ I find this quote particularly compelling because it is free from moral judgement. It doesn't label past actions as right or wrong. It's not about ethics or religion. It simply states that actions have consequences. What we did in the past shapes how we live today, and what we do now will shape the lives of future generations.

Models of Doom

Let's start with a most famous study investigating actions and consequences: the 1970 report *Limits to Growth*, produced by sixteen researchers from the Massachusetts Institute of Technology (MIT), commissioned by the Club of Rome and funded by the Volkswagen Foundation.² The researcher created an elegant piece of software to model the future behaviour of the entire world. For its time, this was an extraordinary feat, especially when considering the limited computing power available in the 1970s. The program, uninspiringly named World3, was fed with data on industrialisation, population, food, raw materials and pollution. It produced eleven different scenarios projecting the Earth's future up to the year 2100, based on varying human behaviours.

For me, this is a perfect expression of Nootboom's idea that 'history has no purpose, only consequences'. The most undesirable scenario—one in which humanity simply continues as it always has—predicted a

¹ Cees Nootboom, *Venice: The Lion, the City and the Water*, trans. Laura Watkinson (MacLehose Press, 2020).

² Donella H. Meadows, Dennis L. Meadows, Jørgen Randers and William W. Behrens III, *The Limits to Growth* (Potomac Associates – Universe Books, 1972).

complete collapse of the economy, environment and population by 2070. This was labelled, somewhat unemotionally, the 'Standard Run Scenario' or 'Business-as-usual Scenario.'

Criticism of the study was swift and intense. A journalist for *The New York Times* claimed that all the models ultimately pointed to the Earth's destruction. Psychologist Marie Jahoda of the University of Sussex famously dubbed the study 'Models of Doom.'

Forty years after the publication of *Limits to Growth*, we can observe that our reality is exceptionally close to the Standard Run Scenario. Is this bad? Is it wrong? I'm not sure. I would prefer to leave morality out of the equation. If you look at the Earth's temperature and carbon dioxide levels over the past million years, you'll see that we are not exceeding the highest levels recorded in the past. We'd need to look back about one hundred thousand years to find a similar state. You could state with some confidence that planet Earth will survive, but human existence will become increasingly difficult, or probably impossible.

The current state of our planet is poignantly captured in the documentary *Anthropocene* (2018), by photographer Edward Burtynsky. Through a series of poetic visual stories, it illustrates the destruction of our world. The documentary is so well made that a reviewer of the film sighed that the film evocated a 'paradoxical desire to witness our own collective death.'

Plastic

Now, let's take a step back to 1960, to the world depicted in the Netflix series *Mad Men*. In an episode from the second season, Don and Betty Draper take their children for a picnic in the park. Don, who is rising in the advertising world and embodies the 'American way of life', is with his family on a grassy patch next to a road. A shiny, light blue Buick LeSabre convertible is prominently featured. After their meal, Don instructs Betty to check if the children's hands are clean before they get back in the car. They then tidy up: Don tosses his empty beer can into the distance, and Betty shakes out the picnic cloth, covered with litter. They drive off, leaving the rubbish behind.

The series cleverly highlights the stark contrast between then and now. What stands out most in this scene is the casualness with which the family discards their litter in a public space. What was once considered normal and natural now seems unthinkable or absurd.

Upon further reflection, we too are the 'Dons' and 'Betty's' of our time. The shock we feel when watching this scene is hypocritical. In our world, it's common for people to buy bottled water packaged in plastic that lasts seven hundred years—yet the water itself is consumed in just a few minutes. The discrepancy between the lifespan of the packaging and its actual used time is striking. Why do we package something meant

for a few hours of use in a material that will persist for centuries? Is the difference between throwing litter away in a public park and dumping at a landfill fundamentally different? What is the mechanism which makes us think it is? This is not about ethics; it is simply bad design.

Heroic Attempts

At bureau SLA, one of the key aspects of our approach is shifting the perspective on what is considered logical. We often ask ourselves, 'This seems logical, but is it truly?' or 'What if we change the underlying logic? What consequences would that have?'

One day, we were asked to consider the issue of plastic waste. A great group of people had started collecting household plastic waste as part of a pollution awareness initiative. The project was highly successful—so successful, in fact, that they soon accumulated more waste than they could store. They came to us for a design solution.

Our first step was to clean the plastic waste and make it aesthetically pleasing. We wanted to create a meaningful relationship with a material that originated in the garbage bin. It seemed like a natural first step—start loving what you have in your hands.

As architects, we thought: Let's design a cladding material. This would expand our material library while addressing plastic waste—since covering a wall requires a significant amount of plastic, the more we use, the better. With a bucket of salvaged plastic grains in hand, we visited various injection-moulding factories in and around Amsterdam. We excitedly pitched our idea: combining plastic waste, innovative design and new green business opportunities. 'This,' we said, 'will make you rich!'

But the response was less than enthusiastic. 'This is a great idea,' they replied, 'but we won't put your garbage in our machines. You can't guarantee your bucket is free from contaminants like metal, wood or mixed plastics. We cannot and will not work with you!'

This led us to invent our own plastic recycling machines. And we did. Though our machines are quite low-tech, each one of them represents an industry: from waste collection to cleaning, sorting, shredding and injection moulding. These are industries that are rarely connected. By bridging these gaps, we were able to create something entirely new. The first wall we made brought us immense joy. It made us believe that if garbage could look like this, recycling had a bright future. So, we launched a side company, calling it Pretty Plastic. We were running towards a bright future.

It took four more years to turn our experiment into a viable product. Today, our machines are the size of a living room. We remain committed to using only waste—nothing else. Hundreds of tonnes of plastic waste are transformed into beautiful, very affordable cladding material. It's very rewarding to see other creative people adopting Pretty Plastic.



Figure 01. Pretty Plastic wall

Elton John used it as a backdrop for a performance, and MVRDV is incorporating it into several German projects. Around fifty projects across Europe have been completed using our recycled plastic, including a swimming pool, a museum and a school building.

There Is No Such Thing as Linear Economy

Looking at these projects, it becomes clear that the supposed contradiction between linear and circular economies doesn't truly exist. There is no such thing as a linear economy. The materials we use don't just vanish; they change form but never truly disappear. Even if burned, they simply shift from a solid to a gaseous state. They may be invisible, but they are still present.

Watching a bird makes you wonder why humans have such a separate place on this planet. A bird can eat as much as it wants, defecate as much as it needs, and have as many offspring as it desires, with no warning about 'unsustainable behaviour'. No one tells the bird to be more circular or regenerative. The bird-society operates in a complete and balanced way, unlike human-society. For some reason, humans are not able to live like birds. We find ourselves in what I call 'Existential Dissonance'—the only species that needs to separate itself from other sentient beings. I believe this is not a desirable state. I would like to live in a society where my actions, whatever they may be, contribute to the ecosystem in a natural, self-evident way.

Around two hundred years ago, building was a much more regenerative activity. Structures were designed so that materials could be reused indefinitely, retaining their value over time. Buildings were intended to be maintained. Back then, labour was cheap, and materials were expensive. Today, however, labour is heavily taxed while materials are not, making it cheaper to dispose of materials

and buy new ones than to maintain existing structures. This has led to an infrastructure of waste—more than half of the waste we produce comes from construction.

What's striking is that this waste is designed by architects and engineers. Why design something that you know will inevitably become waste? Why not design something that will retain its value over time? To me, this isn't about moral or ethical considerations; it simply seems like the smart thing to do.

This idea isn't new. Stuart Brand's Shearing Layers model, proposed in the 1990s, suggests that if you design in adaptable layers, the total cost of ownership is significantly reduced. The Lustron houses, built after World War II, are another great example of smart design. Five men could assemble one of these homes in just a week, and thousands still exist today. They can be easily disassembled. While Lustron houses may not be iconic in the world of postwar architecture, designs by Jean Prouvé and Buckminster Fuller show that introducing new building logics can result in outstanding, innovative architecture.

People's Pavilion

We were tasked with designing the main pavilion for the 2017 Dutch Design Week, the largest design event in Northern Europe. The brief was to create a sustainable icon—a building so environmentally responsible that it would set a standard for at least five years. Initially, we thought the commission sounded ridiculous. How could we build a structure for just one week and call it sustainable? The most logical solution seemed to be renting a circus tent or using one of the vacant office spaces nearby. In fact, doing nothing at all appeared to be the most sustainable option.

But we soon began to rethink the challenge. What if we could approach it differently? Instead of building in the traditional sense, we explored the idea of borrowing materials. Could we source building materials from local producers, citizens or shops and then return them after the event? For the materials, it would be as if nothing had happened. Items taken from a shop would simply disappear from the shelf for a few days and then reappear.

Of course, we faced the obvious challenge: If I borrow something from you, I would need to return it undamaged. No holes, no traces of glue and no paint. This forced us to devise innovative construction systems that would allow us to assemble the pavilion without using screws, drills, saws or glue. Working with engineers from Arup, we developed a structure based entirely on friction rather than rigid connections. To ensure the design's stability, we conducted load-bearing tests at the Technical University of Eindhoven.

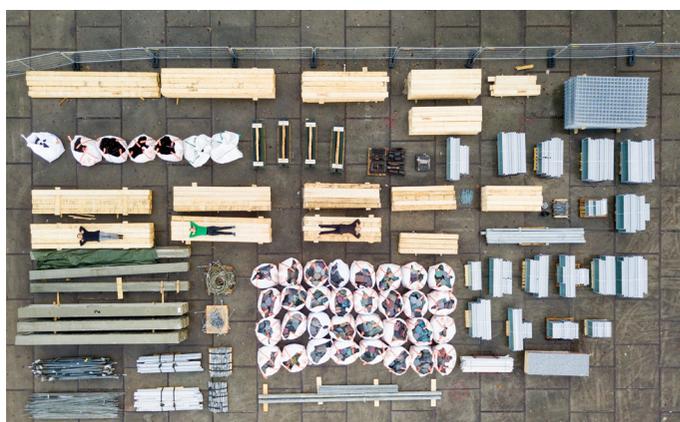


Figure 02, Figure 03. bureau SLA and Overtreders W, People's Pavilion, Eindhoven, Netherlands, 2017. The bottom image depicts all materials used in the project

The pavilion was built with twelve concrete foundation piles, using fifty cubic metres of wood, recycled plastic tiles and a roof originally designed for a greenhouse. Seating was borrowed from an Amsterdam church. After the event, all materials were returned undamaged to their respective owners. The wood supplier was so impressed that he sold the wood at a higher price, recognising that the story behind it had added value.

Belief System

I initially studied mathematics, earning a cum laude degree. While working on a PhD in Germany, I decided to transition into architecture—a decision I have never regretted. Though I loved science, I realised that I had more to offer than just numbers and formulas.

Every scientist learns to understand the logic of things. This is not a self-evident quality. What we believe to be logical often depends on the context. Even science itself is built upon a belief system. I am not

suggesting that science is a mere belief, but rather that it functions within a framework of assumptions.

A good example of this is Euclidean mathematics, which is based on five beliefs that we call axioms. One of the beliefs states that there is only one shortest line between two points, and that it is a straight line. Another axiom claims that parallel lines never intersect. These axioms may seem logical, but there is no proof that they are absolute truths—they are, in fact, beliefs.

In the nineteenth century, mathematicians began to challenge these axioms. The brilliant German mathematician Riemann, around 1850, asked, 'What if two parallel lines do intersect—in the infinite?!' This idea sparked a fierce mathematical debate that some supported while others rejected. Oxford mathematician Charles Dodgson wrote about the subject in his book *Euclid and his Modern Rivals*.³ Dodgson is better known as Lewis Carroll, the author of *Alice in Wonderland*. What is interesting in this conversation is that Lewis Carroll saw his novel not as a surreal tale. To him the novel describes a perfectly logical world in its own right. 'I am not strange, weird, off nor crazy,' he wrote, 'My reality is just different from yours.'

Non-Euclidean mathematics, which emerged from this debate, provided the foundation for Einstein's theory of relativity. Einstein also showed that, within a different set of axioms, there is in fact an infinite number of shortest lines between two points. And they are all bent.

The takeaway here is that what we consider logical makes sense only within the system of axioms we adopt. The axioms of our world are constantly evolving. For instance, not using fossil fuels would have seemed absurd to most people fifty years ago, yet today it's a commonly agreed upon necessity. As designers, we must challenge the axioms of our time, just as Riemann and Einstein did, and seek out new logics.

Cultural Centre Utrecht

In 2022, we won a competition to design a cultural centre in Utrecht, and we applied Stewart Brand's Shearing Layers model to an urban scale. The project encompasses roughly ten thousand square metres of exhibition halls, theatres, artist studios and educational facilities spread across six buildings. The project is situated in Utrecht, the fourth largest city in the Netherlands.

We asked ourselves: What if the buildings themselves were layered in an Extended Shearing Layers model? Some buildings could be designed for short-term change while others were intended to last for decades.

³ Charles Lutwidge Dodgson, *Euclid and His Modern Rivals* (Macmillan and Co, 1879).



Figure 04. bureau SLA, render by Vingtsix Visualizations of Cultural Centre Utrecht, Utrecht, Netherlands, ongoing

This approach would allow for flexibility; for example, the theatre could not only host regular performances but have an additional reconfiguration each season. By adopting this model, buildings could have dynamic biographies that evolve in response to changing programmatic needs over time. Our lives are always in flux—why should buildings be static?

The cultural centre is anchored by a structure designed to last for centuries. It could be imagined as a structure that was constructed four hundred years ago. Made from recycled concrete with added CO₂, we call this structure the 'backbone,' and it is carbon negative. This backbone supports the six buildings in different ways. For instance, the artist studios lean against it, creating sheltered outdoor spaces. In one of the exhibition halls, the backbone supports a mezzanine, providing the twelve-metre-high space with a more intimate venue for exhibitions.

Affordable Housing Casablanca

The final project I would like to present is one we worked on with a housing corporation in Casablanca. The task was to design affordable housing in collaboration with local architects and developers.

This project is rooted in a successful initiative dating back to 2004. That year, King Mohammed VI decided that, as one of the most economically developed countries in Africa, Morocco should ensure that no citizen lives in slums. This vision led to the launch of the 'Cities Without Slums' programme.



Figure 05. bureau SLA, urban plan lines for Affordable Housing Casablanca

The programme has proven highly successful, with hundreds of thousands of apartments built across the country. Its process is both simple and effective. First, land outside the city is acquired, followed by the construction of essential infrastructure, including schools, a mosque, streets, water, sewage and electricity. Slum residents can purchase a plot of land at an affordable price—around €5,000. For those who cannot afford it, the government provides loans. The apartments themselves are not built by developers but by the residents. There is a mandatory standardised method of construction, which is simple, cost-effective and widely known.

The outcome of this uniform process is uniform housing. The buildings are all identical, with standardised floor plans. The layout of these neighbourhoods is characterised by a precise, almost military order: orthogonal blocks of four stories, aligned along straight streets. The mosque, typically aligned with Mecca, often serves as the only exception in the urban fabric. However, developers began to question whether they were truly addressing the housing crisis of today or merely setting the stage for future slums. This led to our involvement. They asked us to rethink the design for a site just outside Casablanca, which currently hosts a daily market and a slaughterhouse. The market's striking brutalist roof structure stood out, and we were keen to preserve it.

After a brief analysis, it became clear that replicating the cost-efficiency of the existing system would be impossible to surpass. We concluded that we should not attempt to improve the construction method or change the layout of the apartments. Moreover, we realised that upending the successful system could cause more

confusion than improvement. The efficiency of the existing housing programme was undeniable.

Casablanca has a rich history of social housing, with iconic projects dating back to the 1930s, such as the Habous neighbourhood, which is loved by all. From these historical projects, we identified two key elements that would help us to shape the new development. The first is the use of arcades—covered outdoor spaces that provide shade for pedestrians and are often used by shops, bars and restaurants for outdoor seating and displays. The second is the concept of informal, slow-traffic routes—pedestrian pathways that connect shops, squares and public spaces, a common feature in Medina-style urbanism.

Our proposal was to blend the efficiency of the housing programme with informal, Medina-inspired pedestrian routes. This required only minor adjustments to the existing urban plan. By making small changes, we could design a more sensible, engaging environment while retaining the original construction logic. The result was a layered masterplan: a balance of efficient car access combined with informal pedestrian routes. We introduced squares, markets, informal paths and layered spaces—simple but effective interventions. The key addition was the inclusion of arcades on the south side, providing shade for pedestrians. These areas, free from cars, would feature shops, cafés and restaurants.

On the Way Out

By challenging the fundamental principles of our time, much like Riemann and Einstein redefined mathematics, architects can create new frameworks for the systems that shape our society. Ultimately, the challenge goes beyond designing buildings—it's about reimagining the very logic of design itself, ensuring that it serves both humanity and the planet in harmony. As designers, we have the unique opportunity not only to formulate new logics but also to translate them into shape, colour, form and space. In doing so, we develop new architectural vocabularies that give tangible solutions to the needs of both today and tomorrow.