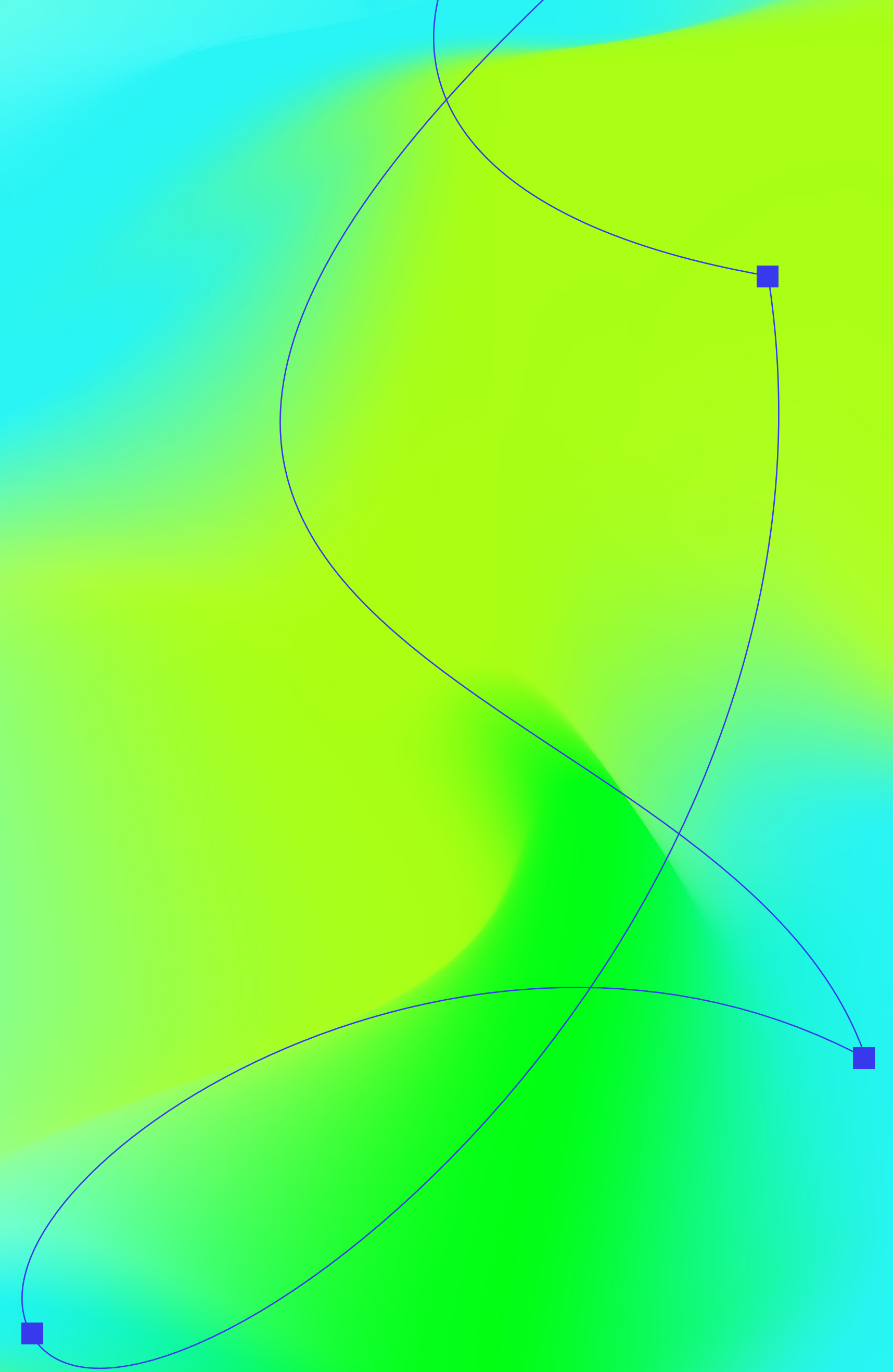


# Building Vitality - Regenerative Construction



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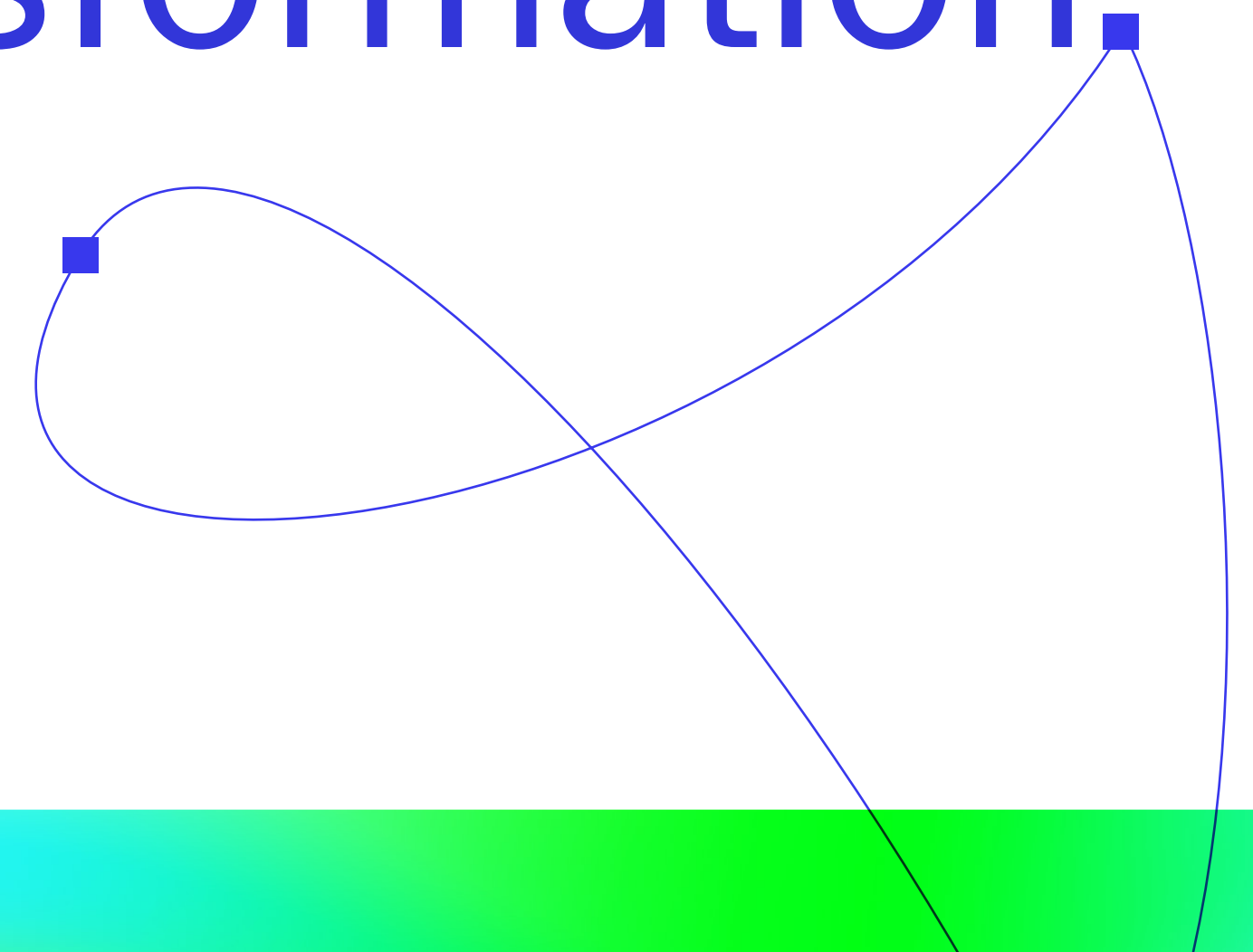
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# A call to re-imagine our cities

**THE CURRENT MODEL OF** urban property development is incapable of delivering truly sustainable buildings. A third of global emissions are linked to the building and construction industry. The global building stock is estimated to double by 2060, and construction and property emissions are still increasing 1% per year. With the current trajectory of the ecological crisis, combined with our extractive human-centrist worldview and rapid urbanisation, we can no longer afford business-as-usual.

Since steep enough mitigation is impossible, the way to achieve the industry's ecological budget is to turn regenerative, an approach that enables social and ecological systems to maintain a healthy state and evolve together. The regenerative worldview draws on the ontology of co-evolution and a partnered relationship between human and natural systems. Humans have to see themselves as part of ecosystems, and their action must reinforce the flourishing of these ecosystems.

To face 21st-century challenges successfully, city governments and actors of the built environment must be proactive in this transformation.



Cities are the perfect places to bring regenerative thinking into practice. They are artificial creations and the ultimate disruptors of natural systems. It's time to step up to change the fundamentals of urban property development: a new paradigm of inclusive and regenerative cities is emerging. A regenerative city is an urban development built on an environmentally enhancing, restorative relationship with the natural systems from which the city draws resources for its sustenance<sup>1</sup>. Therefore, regenerative buildings both restore and improve all life in their surrounding environment. It's not only a matter of reversing damage but of having a net positive impact on ecosystems.

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1. Herbert Girardet (2014) "Creating Regenerative Cities".



“A regenerative city is an urban development built on an environmentally enhancing, restorative relationship with the natural systems.”

# The vision: re-defining the relationship between nature and humans



“**WE SHAPE OUR BUILDINGS**; thereafter they shape us”, said Sir Winston Churchill in 1943. This statement is true, even in a broader sense than Churchill likely considered.

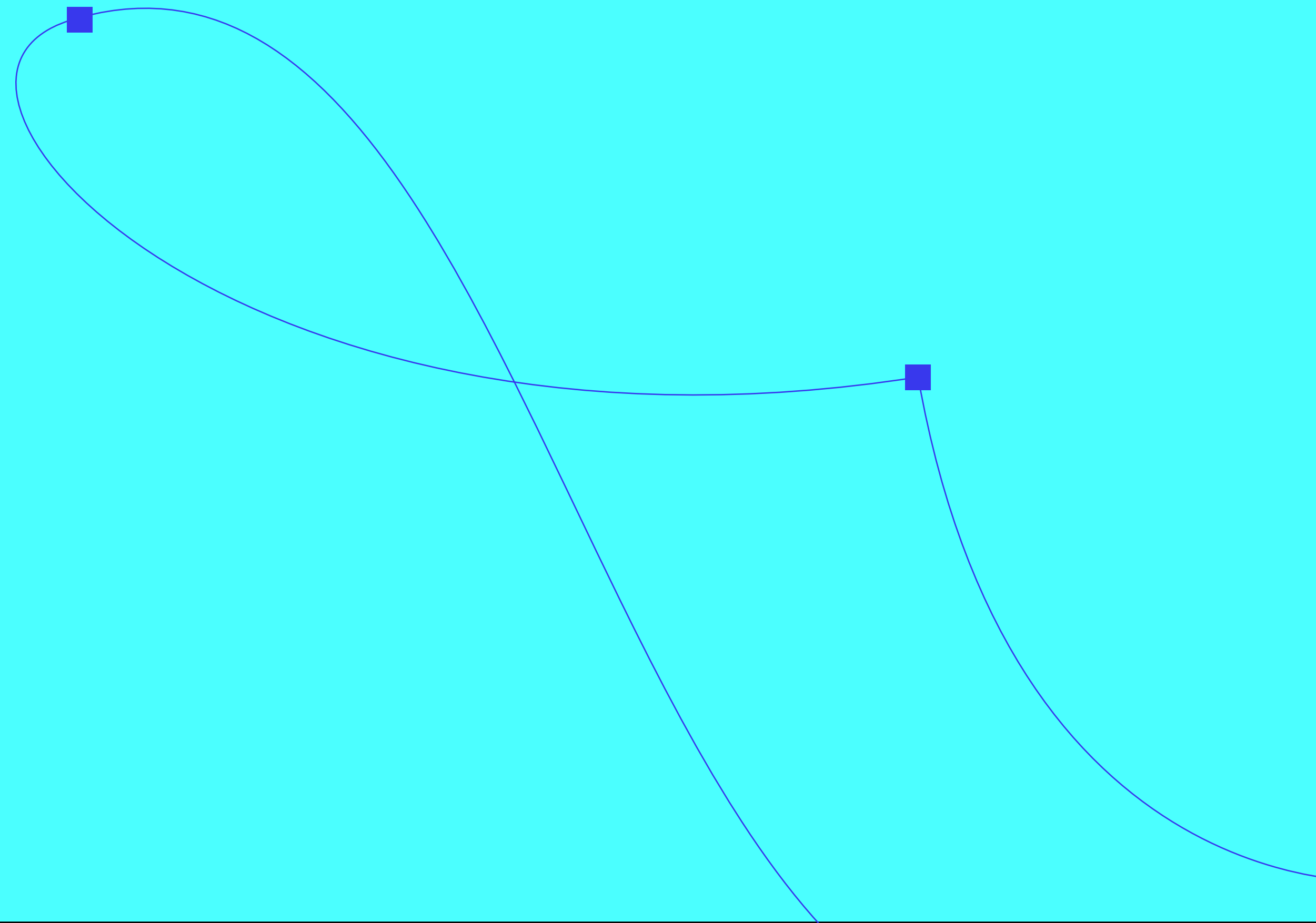
The shape of buildings and cities make certain actions possible and others impossible. The built environment affects people’s mood, wellbeing, and physical appearance in various ways; our surroundings influence activity and thinking.

In our vision, by re-imagining the role of buildings, we can redefine the relationships between nature and humans. Buildings were born out of the need to protect humans from natural phenomena. However, this not the only relevant aspect anymore, for both people and non-human entities are currently in danger. As the role of buildings changes rapidly, so does the entire industry.



# Why urban development must change

Why should everyone believe in this vision? For our benefit. It's backed by science, and it's simply the right thing to do. Let's expand on why we think this vision is desirable!



## **FIRST. Our benefit: It's right because otherwise we're driving off the cliff!**

The current human-nature dichotomy and how we exploit other living beings is swirling those severe, catastrophic and irreversible consequences back at us. The sixth mass extinction is linked to human activities like agricultural expansion and intensification. If we don't take action on climate change, it will permanently harm human civilisations and life as we know it. The human-nature dichotomy is misleading, for it makes us believe we have power over other species, but the consequences of our exploitation will affect us sooner or later.

## **SECOND. Science: It's right because it's true!**

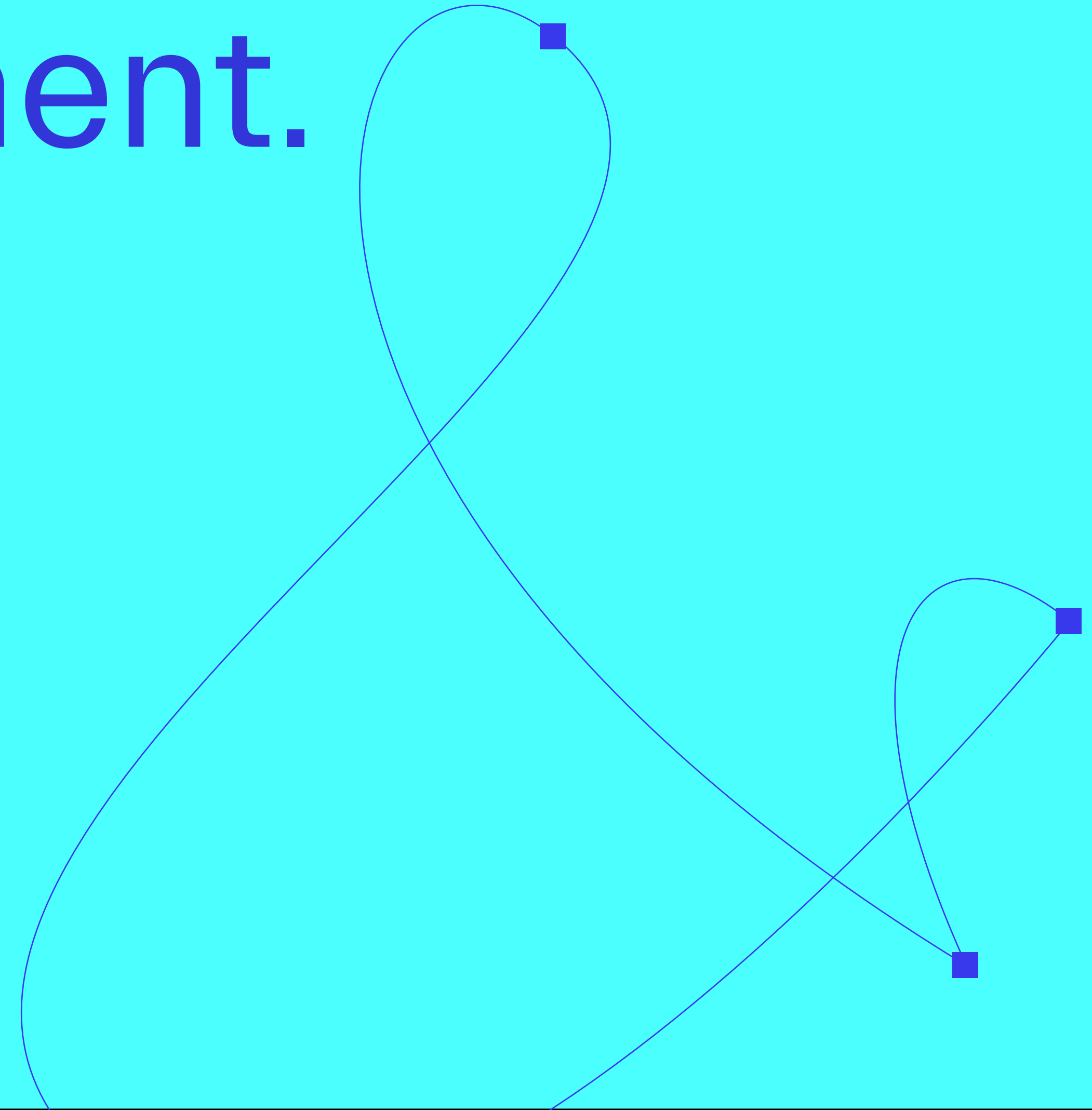
We're continuously learning about other animals' cognitive and social capabilities and plants' communication skills. For instance, mammals and birds experience joy, sorrow and fear, and they also have metacognitive skills. Many non-human animals are self-aware and the most intelligent animals, such as anthropoids, have feelings of empathy and a sense of justice. Plants communicate with each other in various ways, and they even share products of photosynthesis with other plants. It is impossible to consider humans as extraordinary living beings.

## **THIRD. Moral: It's simply the right thing to do!**

The Earth's systems and biological diversity are an outcome of millions or even billions of years of evolution. Human beings do not have the moral right to destroy precious nature in only a few decades. The track we're on is simply outrageous and irrational.

# Refuse normal, imagine, experiment.

Vision is a crucial first step into transformation, but it remains empty without imagination and powerless without experimentation. Before we can have a desired future, we must be able to imagine it and experiment with it. Commitment without action is vanity. There are already exciting initiatives operating in line with regenerative construction.



# The century of living buildings

**IN THE LAST DECADES**, the answer to most urban development issues and strives for urban growth has been more construction. The new preference hierarchy should address that the most sustainable building is the one that is not built at all.

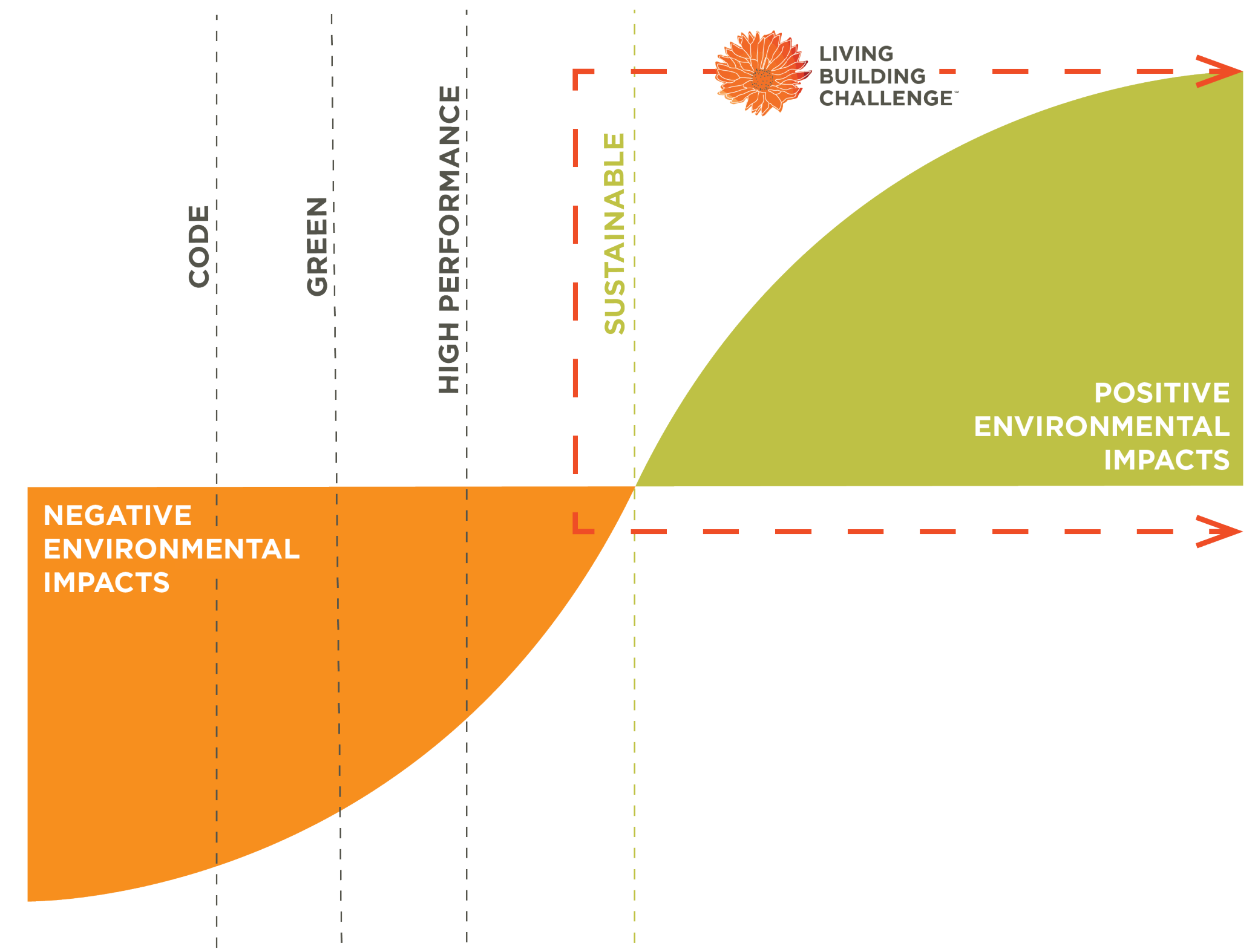
There is a massive potential for economic, ecological and social improvement in energy renovation and changing the use of buildings. But if you have to build new, build living buildings.

Living buildings are buildings that move beyond being less harmful towards being truly regenerative. Jason McLennan, the founder of the Living Building Challenge, compares buildings to living organisms. Like flowers or other plants, buildings should take their energy from the sun and the water they need from their surrounding environment. They are rooted in their place and react to the changes in light, temperature, and humidity. Besides, buildings should be beautiful, just like the natural environment is. Why couldn't this be the criteria for our buildings and the way we design?

# Frontrunners

The Living Building Challenge is an initiative of the International Living Future Institute that gives building projects advocacy tools and certifications for regenerative processes. How to transform towards truly regenerative, living buildings? The Living Building Challenge has a holistic approach. Each project should take into account seven different performance categories. Place, water, energy, health+happiness, materials, equity, and beauty are “the petals” of a living building, and none can be left unconsidered during the process. The success of the projects is measured by actual outcomes, not just by an anticipated performance.

The Living Building Challenge does not only address new building projects: as previously stated, the most sustainable building is the one that won't be built at all. The Living Building Challenge can also serve as a framework for entirely retrofitting old buildings, modifying only their interiors, and for the landscape of infrastructure projects.



The Living Building Challenge is a philosophy, certification, and advocacy tool for projects to move beyond merely being less bad and to become truly regenerative. Image courtesy of the International Living Future Institute.

# Strengthening interspecies synergies.

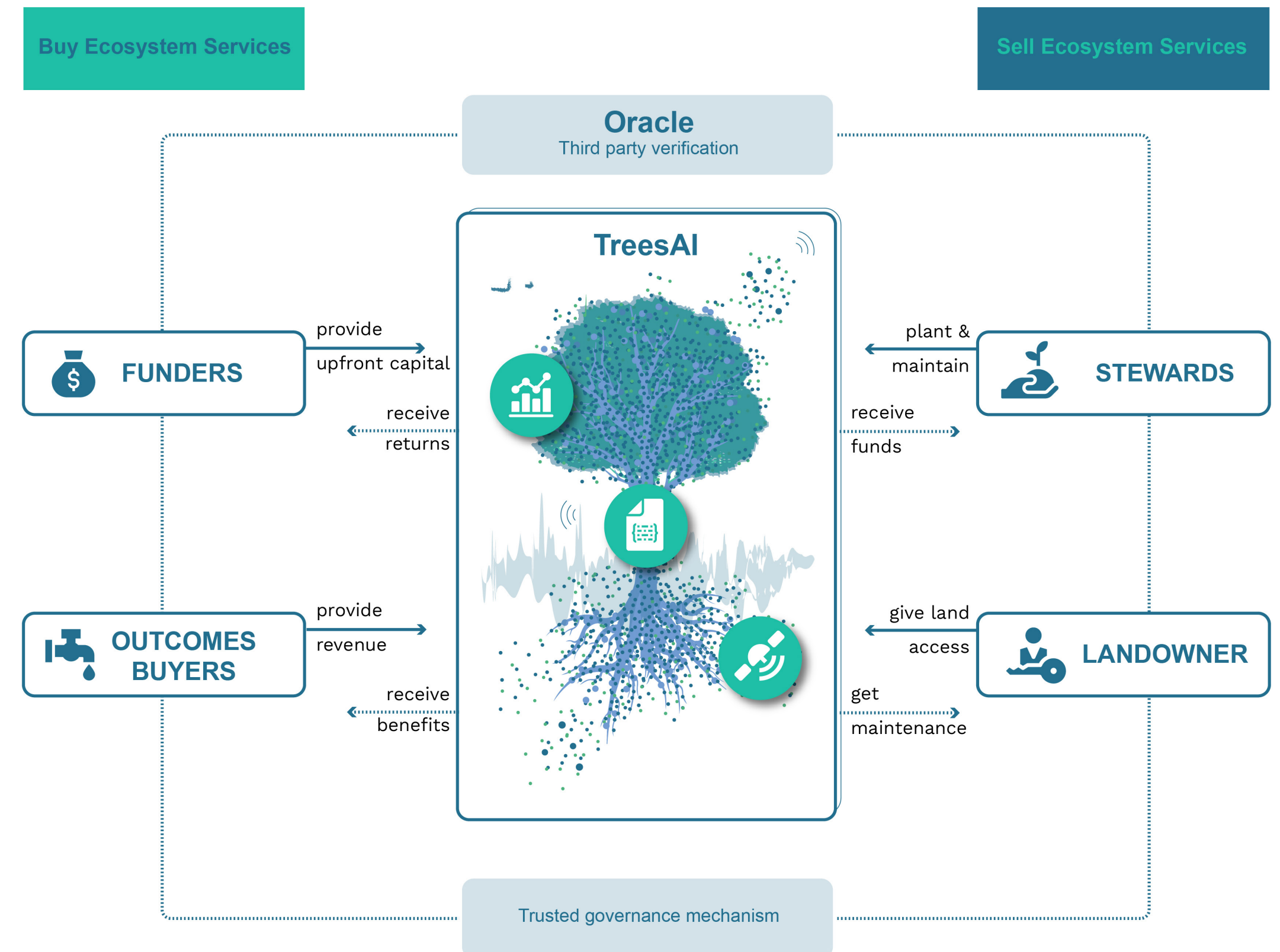
**SPRAWLING URBAN AREAS CAN** demolish entire ecosystems, and nature has generally limited room in cities. Social and ecological systems are perceived as separate from each other, even if they share multiple intersections, and the co-benefits between them are imminent.

Ecosystem services is a concept widely used to help us understand the value biodiversity provides to humans. It connects ecological and social systems. In cities, people are estranged from nature, which often decreases their willingness to protect it. Urban design can address social inequalities and enhance people's connection to nature by positively colliding ecological and social systems.

However, this is not enough; ecosystem services still frames nature as a resource. Other species and organic matter are among our cities' cohabitants: they should be given agency and possibilities to flourish.

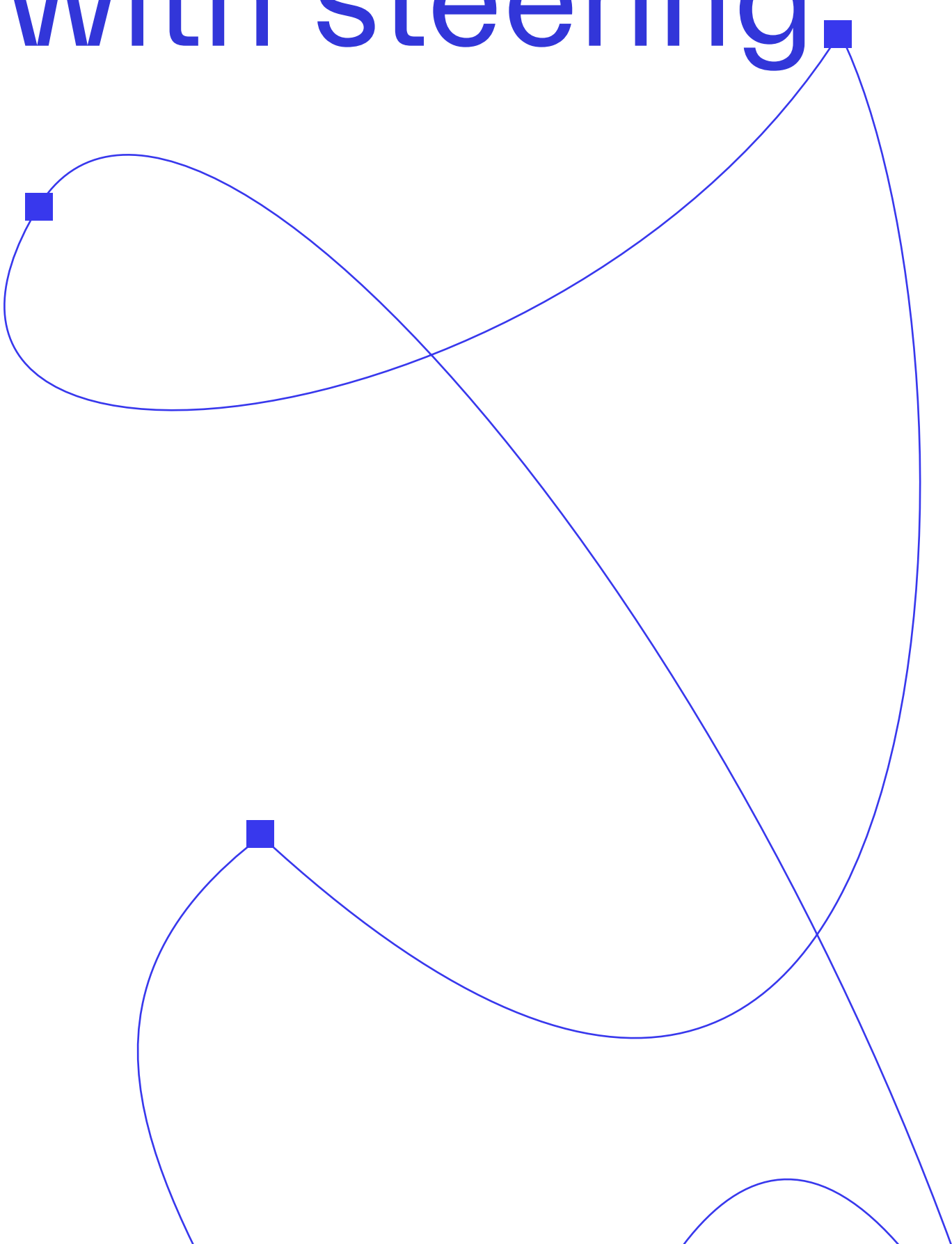
# Frontrunners

One example of expanding agency is the Trees-as-Infrastructure (TreesAI) initiative developed by Dark Matter Labs with the support of EIT Climate-KIC. This open source model could enable multiple city actors to collectively value and invest in urban nature by increasing the benefits trees provide to urban residents. With the help of new technologies, it is possible to measure the impact of trees very precisely. For instance, their cooling effects and rainwater treatment capacity can create direct monetary savings. The system relies on micro-contracts (smart contracts) between multiple parties that sell or buy ecosystem services. Beneficiaries (outcomes buyer) like water and sewer utilities, recognise the environmental impacts that green infrastructures provide by reducing their operational costs. They therefore agree to provide a steady revenue stream so that nature stewards can upkeep new green infrastructure projects. The process is supported by a development team that collaborates with beneficiaries to identify a green infrastructure project and determine its success metrics. This model renders visible trees' direct care-taking agency in cities through long term investment mechanisms.



Example organogram of the Trees-as-Infrastructure model. Image courtesy of Dark Matter Labs.

# Raise the bar with steering.



**INSTITUTIONAL INCENTIVES, NORMS AND** regulations have a considerable steering effect on how urban areas are built and used. Unfortunately, their full potential is not used to push the sustainability of cities. The potential of retrofitting, plot allocation, different taxation forms and financial subsidies have not been fully explored yet.

City councils, national governments, and multinational institutions should take the lead and create an institutional framework that could truly accelerate regenerative city fabric. Most of the time, sustainability is just a nice add-on, a sentence at the end of the plot allocation competition criteria stating “solutions supporting sustainability are an advantage”.

In Finland, municipalities have planning monopolies, and the legislation gives them a comprehensive toolbox for land policy. They should require top-notch ecological sustainability. Regenerative construction should be made a priority throughout regulation and planning.



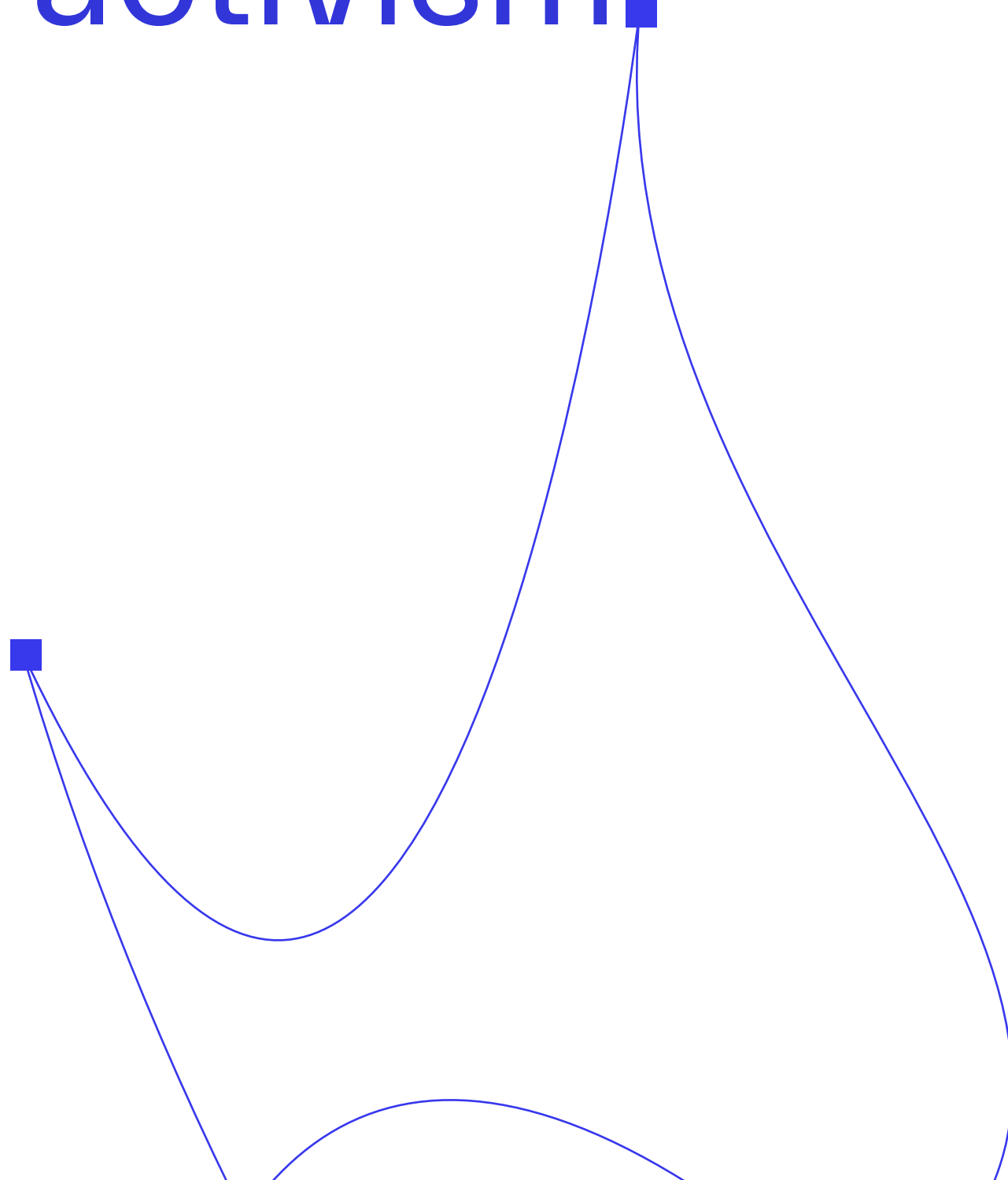
# Frontrunners

From time to time, there are some glimpses of better steering in various cities. The City of Helsinki has a plan of being carbon neutral in 2035, and this goal steers development in many ways. In a plot allocation competition in Verkkosaari, 50 % of the evaluation is based on architectural quality and the other 50 % on ecological sustainability. The criteria includes measures such as energy efficiency, green factor (the ratio of green area to lot area) and life cycle analysis of the carbon footprint. Strong emphasis on ecological sustainability encourages the development of ambitious solutions and building better. This should be the norm, not just an exception.



Low-carbon & Green Quarter will be built in Verkkosaari, Helsinki.  
Photo: Pekka Vyhtinen, Helsinki City Museum (CC 4.0).

# Changing the industry through (honest) corporate activism.



**COMPANIES HAVE A SIGNIFICANT** impact on our world. Still, their success is measured only by economic profit, and their social responsibility narrowly judged, which perpetuates the exploitation of all kinds of resources.

A tool for change is genuine corporate activism, one that reaches further than corporate social responsibility. It takes courage from the corporate world to step in to defend causes that don't yet have ample support in society. Frequently, those things are also the ones for which taking a stand does not show positively in sales, but corporate activists can also make ethical choices, not just business-driven ones.

If companies harnessed all or even a tiny part of assets flowing in the private sector for change, we would have considerable resources to move towards a regenerative world.

# Frontrunners

Ylva is a Finnish real estate and services company that has started its journey towards corporate activism in multiple ways.

Given that approximately 40% of global CO2 emissions come from construction and real estate, Ylva has started lobbying for new regulations towards higher sustainability standards. For example, their Lyyra-project reduces energy consumption already in the construction phase and aims to recycle 95% of materials. As part of Ylva's push to make the cities of tomorrow more inclusive, it chose its new tenants in Kaivopiha, a project in central Helsinki, according to two premises, being local and promoting sustainability. Currently, Ylva works towards more inclusive building sites in an OECD-backed B4IG consortium.

Through its actions, Ylva aims to foster discussions and raise awareness on sustainability topics. Besides immediately cutting CO2 emissions by 11%, when Ylva banned beef in over 20 of their restaurants, they made a splash in the media. They struck a chord with many people: the decision was both highly praised and frowned upon, but what mattered most was that it raised a genuine discussion about the role of food in our emissions.



Lyyra-project. Image courtesy of Ylva.

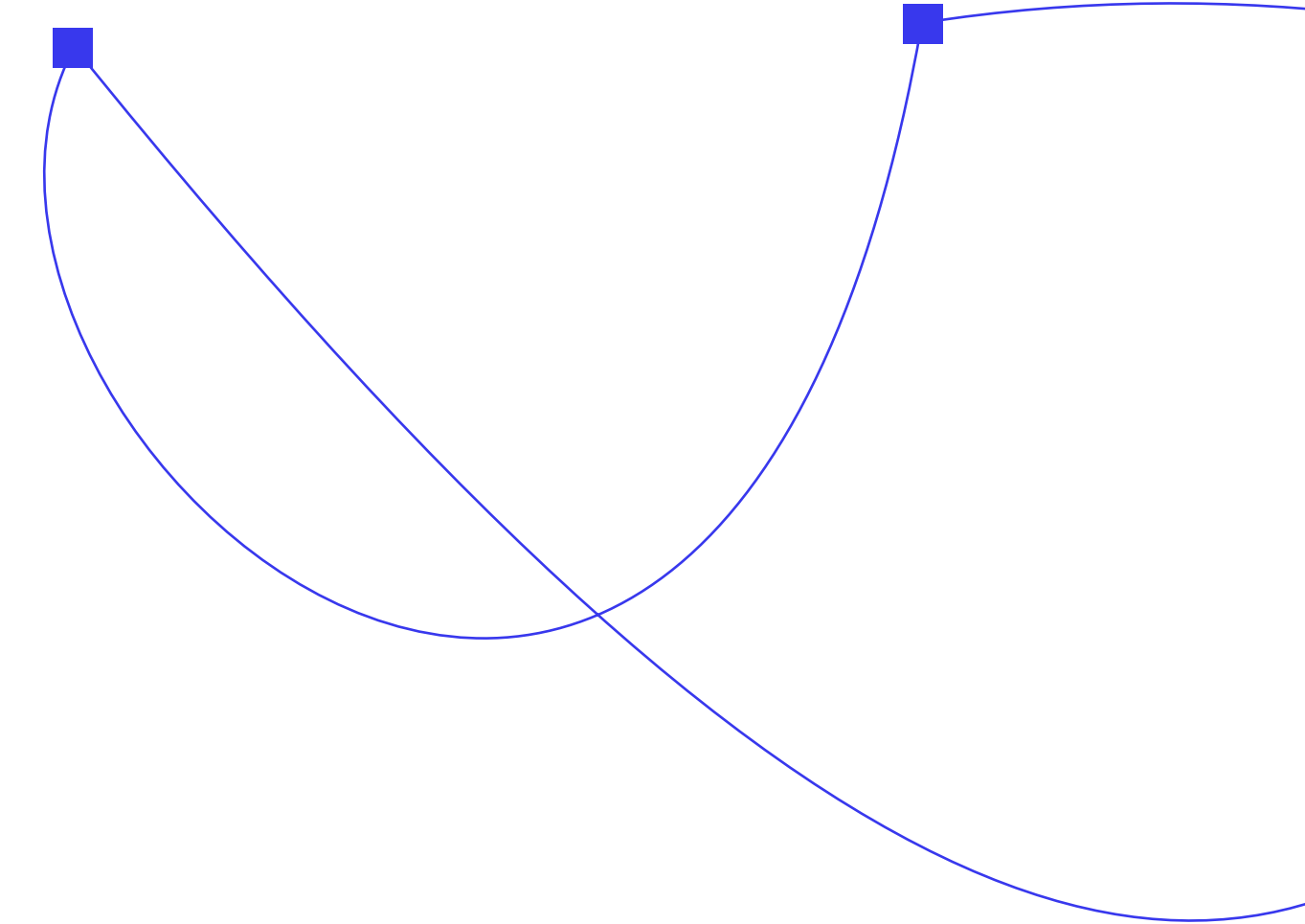
# Final words:

# The balancing act

**IN THIS PAMPHLET, WE** laid out a vision of regenerative urban development that challenges and redefines the human-nature dichotomy. We should strive towards it for our self-interest. Science indicates so, and it is our moral obligation as members of this planet. Achieving this vision implies refusing the normal to re-imagine, experiment, learn and never stop trying.

Regenerative development is like a balancing act. An acrobat can fall any minute, the same way our societies are shooting towards collapse by disturbing ecological systems and reaching tipping points. And so, the acrobat is constantly changing its posture to maintain balance.

In regenerative urban development, we achieve balance by retrofitting and constructing in a way that restores the damages we've done to ecological systems. But we can't see such a balancing act as a merely technical one: it aims at spreading joy. Our joy is a vibrant urban life. In a regenerative city, such encounters and innovations align with planetary boundaries, recovering nature so it can find its place back.



The human-nature dichotomy addresses humans and ecosystems separately, a dualism that makes it difficult to challenge anthropocentric imaginaries and raise awareness about non-humans' rights. People belong to nature: we are interconnected, and should act accordingly. Instead of being a protective barrier between humans and non-humans, buildings can become a binding force, shifting from being a passive wall to an active companion.

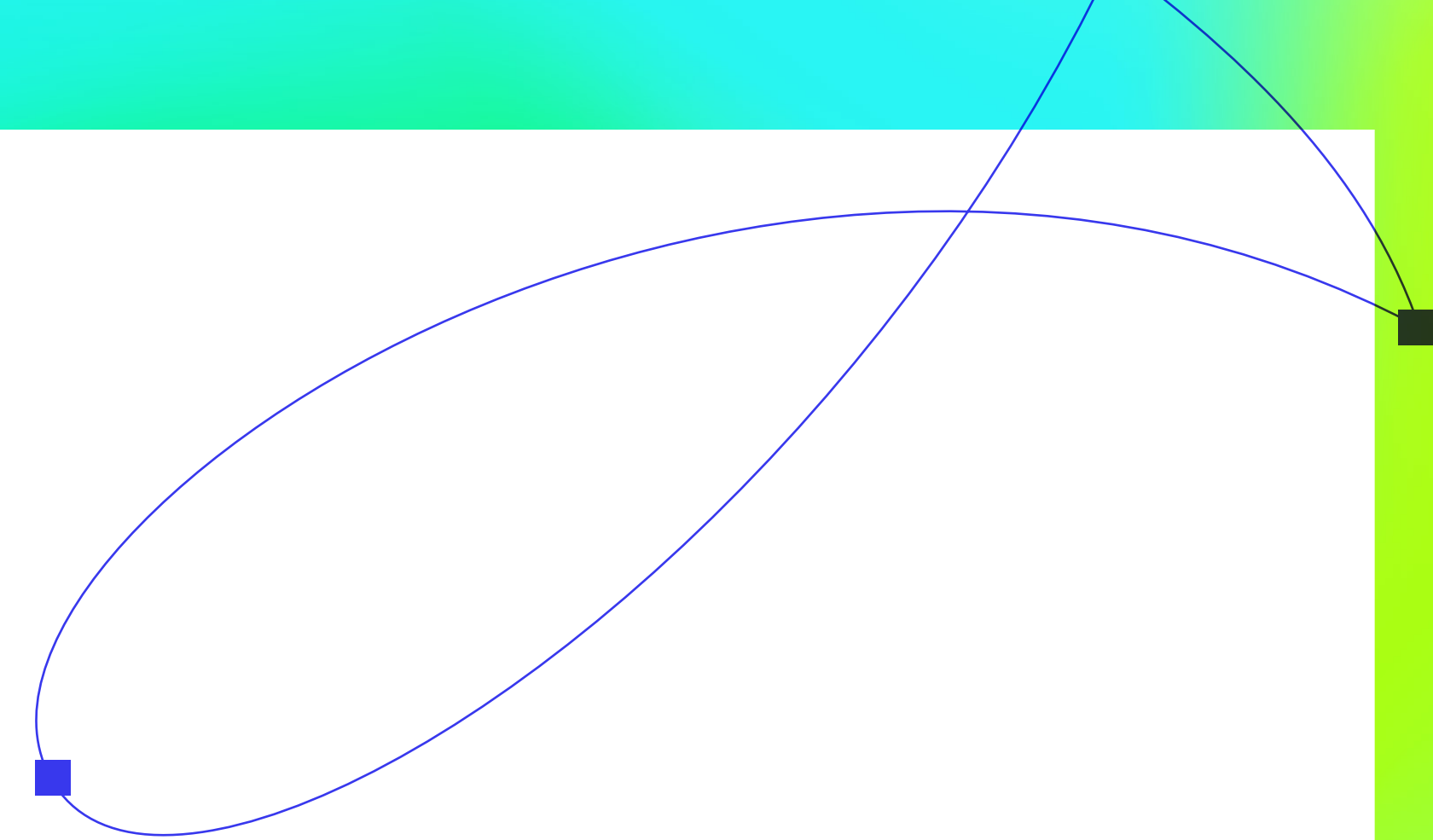
From this perspective, the entire city changes. We no longer have green areas on the one hand and buildings on the other. We no longer need to leave the city to reach nature. We no longer have buildings and vivid human life separate.

Buildings give form to our living environments, influencing our behaviour, identity, and capacity to imagine. Thus, by changing how we build and understand buildings, it becomes possible to transform the way we think. This transformation's promise is no small feat: we believe investing in regenerative construction can dramatically diminish the human-nature dichotomy.



# Call to action!

Get involved in the next fair, joyful, and sustainable era. It just takes a message!



## Join us in re-imagining the future with UNTITLED community.

Contact: **Roope Mokka**, Founder, Demos Helsinki & Untitled,  
roope.mokka@demoshelsinki.fi

## Join us in designing sustainable urban living solutions.

Contact: **Henrik Suikkanen**, Lead, Urban Transformations,  
henrik.suikkanen@demoshelsinki.fi

## Join us in corporate activism and making real life experiments in the built environment.

Contact: **Antti Ruuska**, Chief Sustainability Officer, Ylva,  
antti.ruuska@ylva.fi

## Join us in creating and learning about living buildings.

Contact: **Carlo Battisti**, President, Living Future Europe,  
carlo.battisti@living-future.org

## Join us in creating resilient urban forest infrastructure.

Contact: **Carlotta Conte**, Dark Matter Labs,  
carlotta@darkmatterlabs.org  
**Ilona Puskás**, EIT Climate-KIC,  
ilona.puskas@climate-kic.org

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