Regulation and infrastructure tech are key to constructing sustainable cities

The world is burning. Wildfires raging in Greece and Algeria have become commonplace in the last decade. The IPCC's Special Report on global warming released in August is a sobering forecast for the coming decades if climate change is left unchecked. Action is needed now.

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Where the built environment is concerned, the statistics are startling. Humanity is building new skyscrapers – the equivalent of putting up another *New York* every month – and our cities absorb two-thirds of the world's energy and generate over 70% of global emissions. As temperatures rise and demand for air conditioning increases, the energy used to keep us cool will triple.

The role of the technology investment ecosystem, governments and policy experts is critically important in guiding the adoption of innovation to future proof the sustainability of urban environments.

Regulatory frameworks and infrastructure technologies

Without clear regulatory and policy frameworks, creating incentives to solve long-term infrastructural problems is extremely difficult. The UN's *Sustainable Development Goals* have become an invaluable element in the fight against climate change in cities, with their list of 17 goals aiming

to provide ‘a blueprint to achieve a better and more sustainable future for all by 2030.’

Last July, European Union leaders also reached a recovery deal that pledged nearly €550B to green projects over the next seven years – the largest single climate pledge ever made. Representing a 30% share of a total €1.074T EU budget for 2021-27, the allocation has been viewed as a major part of efforts to help drive action on an EU-wide level to achieve the EU’s goal to become climate neutral by 2050.

The UK created a *new target* to slash emissions by 78% by 2035. While these regulatory efforts help to drive action to solve urban sustainability challenges at a macro level, thinking more locally is necessary.

> *Conceiving of the technologies underpinning cities as an ‘urban stack’ could provide the answer.*

The ‘urban stack’ is a multi-faceted system comprising every element of the built environment, from the way our cities are designed, constructed and powered, to the way people live and work. It can and should incorporate everything from new construction materials and algorithms that make buildings more efficient to manage to micro mobility, machine learning driven project management tools and city infrastructure solutions.

But vital to investing in such sectors are the metrics VCs and startups use to track progress on sustainability goals. VCs and startups must prioritise long-term impact in their growth and investment strategies beyond the 10 or 20 year horizon to 50 years and beyond. That’s where the Gigacorn framework can help.

The Gigacorn question

So, what is a Gigacorn? This covers commercially viable companies whose technology has the potential to mitigate or reduce one Gigaton of CO2 equivalent per year at scale.

Many are concerned that it will take decades to begin achieving these levels of climate change, but that isn't the case. Last year, the IEA's *Clean Energy Technology* guide showcased how currently existing technologies they deemed as "mature" could reduce as much as 5.2 gigatons of CO2 per year by 2030.

Technologies now exist that introduce CO2 into fresh concrete to reduce carbon footprint without compromising performance. Since concrete is the foundation of any building today, infusing the basic building blocks of structures and urban environments with such sustainable technologies can help cut down the world's carbon emissions drastically by ensuring that they consume energy efficiently and create net-zero waste.

Innovation can be built into construction from the ground up to help create the sustainable cities of the future, enabling better quality of life for communities to be baked in by default.

Plus, the majority of sustainability technologies considered to be commercially ready at this point are all focused around the urban environment, such as construction and building technologies, energy and heating solutions. Lighting, for instance, accounts for nearly 5% of global CO2 emissions, yet a global shift to using LED lighting instead of traditional lighting sources would save 1.4 Gigatons of CO2.

Actionable impact is available to us now, but it requires the incentives to be aligned in the right manner from both a founder, investor and a policymaker perspective.

Implementing and tracking change

These aren’t the only technologies and industries that could see substantial change by using the Gigacorn framework. Electric vehicles and meat substitutes, new technologies centred around concrete and steel, as well as both software and hardware innovations, could benefit. There is a wealth of innovation waiting to be tapped.

The key is making sure impact is tracked effectively, and policymakers can help bridge that gap. Frameworks such as the UN’s Sustainable Development Goals are vital for providing the initial impetus to inspire innovation throughout markets and technological sectors.

But the systemic changes required to our economic landscape must be matched to clear KPIs and standards, whether regulatory or otherwise.

Investors into a VC fund can set certain climate-specific metrics and KPIs that they can require GPs to report back as a condition of their investments into funds. At 2150, we track the amount of CO2 mitigated, captured or used per company, and how many millions of tonnes of waste have been saved, recycled or upcycled by companies in our portfolio. Both of these metrics are reported back to LPs. On the founder front, we work with them on individual metrics relevant to specific businesses, which can be anything from litres of clean water saved to improvement in health outcomes.

The key to achieving tangible impact where climate, the urban environment and the technology ecosystem are concerned is a combination of regulation in tandem with private investment at all levels of the urban stack ecosystem. With the UN’s climate change conference COP26 currently underway, all eyes are on governments to see what will be proposed next. The technology ecosystem should be ready to get going too.

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