Fab City briefs: From experimentation & evidence to policy proposals

Fab City: Building a just and equitable transition to locally productive, resilient and regenerative systems

Key Points

- The world faces an unprecedented systemic crisis. Time think and discuss has run out.
- There is a clear, urgent and underestimated need to redesign everything around us.
- Radical and effective policies concerning climate change, energy crisis and social equality need to be prototyped, implemented and tested. It's time to move from intentions to actions.
- Fab City proposes a new productive model based on local manufacturing infrastructure and globally distributed data.
- Fab City is fostering a revolution in how we produce, distribute and consume. It uses innovative strategies to enable this revolutionary, fair and equitable transition to a green, regenerative, locally productive, creative and inclusive socioeconomic model for planetary living.

The world is facing an unprecedented systemic crisis. How we create policies needs to change and be informed by real-world experimentation, not assumptions from a public office. It's urgent to overcome the primacy of economic growth as a policy goal by developing policy approaches that equally address social, ecological and economic goals coherently. Radical and effective policies in relation to climate change and social equality need to be prototyped, implemented and tested, respecting contextual differences such as culture, geography, and social groups. Policymakers have the urgent responsibility to respond to these issues, and create the conditions for inclusive, regenerative and productive places. Fab City is supporting the implementation of policies, throughout its global network of cities and regions, that enable a fair and equitable transition to a new paradigm of distributed production of goods, energy, materials and other resources needed to balance the impact of humans on the planet.

What is at stake? The need to redesign the global system

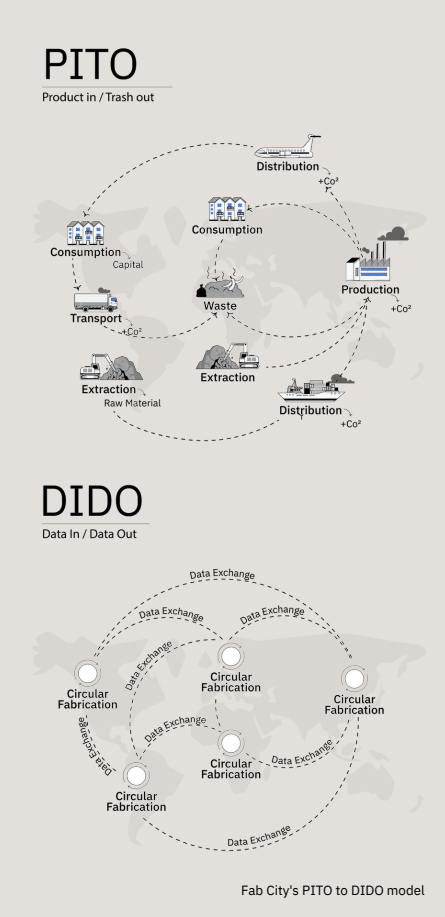
The world's population reached 8 billion in November 2022 (United Nations). We are witnessing, first-hand, how humanity has been consuming planetary resources at a rate that puts planetary systems and ourselves at risk. Climate breakdown, international food and energy crisis, a global pandemic, geopolitical challenges risking a third world war, and scandalous rates of social exclusion. We face an unprecedented systemic crisis. "It's something no civilization has ever faced before, a class of challenges which can only be solved on a planetary scale" (Indy Johar, 2022). Time has run out. It's imperative to rediscuss our values and goals as a civilization. There is a clear, urgent and underestimated need to redesign everything around us. From how we manufacture, distribute and consume goods and services, to how we transition towards a circular, regenerative, resilient, and socially inclusive economy and global system.

Bringing back production to cities and regions: Fab City as a transition to a regenerative, localized, creative and inclusive socioeconomic model for planetary living

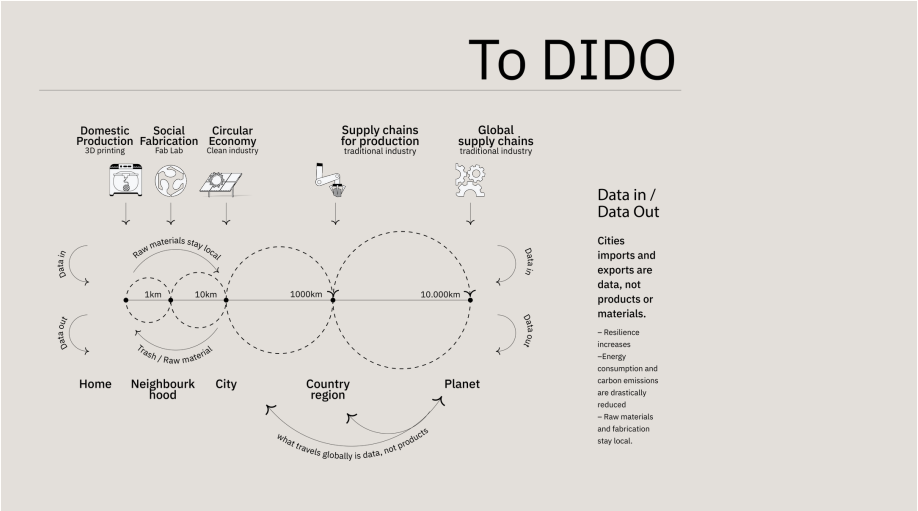
To overcome climate change, biodiversity loss, land and ecosystem degradation, social exclusion and the current global systemic crisis (materials, energy, food), Fab City proposes a new productive model based on local manufacturing infrastructure and globally distributed data.

How do we do this? Based on experimentation and ground evidence, Fab City proposes a new socioeconomic model that shifts how localities source and use materials from ´Products In - Trash Out´ (PITO) to ´Data In - Data Out´ (DIDO). It means more production occurs inside the city and its bioregional context, along with reused and recycled materials (production and materials stay local). At the same time, the information travels planetarily, following open-source models (Fab City Whitepaper; Fab City Book, 2018).

We're enabling
A global paradigm shift



Thus, Fab City facilitates an action plan for cities and their bioregions to relocalize the production of energy, food and materials, and develop infrastructure such as innovation spaces (e.g., Fab Labs, makerspaces, creative hubs), as well as the core technologies (e.g., digital fabrication tools, new materials, etc.) that can nourish a transition towards a new productive model (Gershenfeld, 2012). Simultaneously, Fab City promotes that bits (information, knowledge, design, code) travel globally to enable knowledge transfer and open-source collaboration.



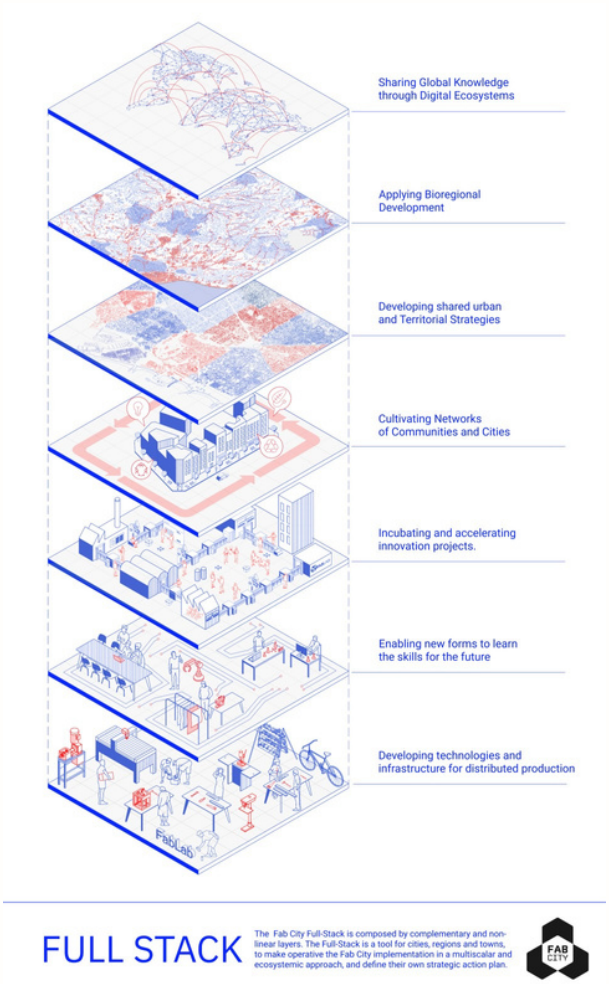
What are the strategies to enable locally productive and globally connected self-sufficient cities?

Fab City, as a global initiative, is promoting a revolution in how we produce, distribute and consume. Our innovative strategies to promote this revolutionary, fair and equitable transition to a green, regenerative, locally productive, creative and inclusive system, involve:

- **Distributed networks:** Fab City is a globally distributed network of diverse contexts that prototype local approaches to meet the challenge producing (almost) everything they consume by 2054. Fab City connects, at the global level, Fab City connects these distributed networks of hyper-local infrastructures for fabrication, production, and distribution of goods and resources.
- **Fab City Network - local action, articulated globally:** Almost a decade of experience building a global and growing network of cities, regions, island and nations allowed us to prototype placed-based interventions. We nurture a distributed design and innovation approach to foster local ingenuity while encouraging global knowledge sharing between cities and territories to provide access to tools and solutions that could be adapted to local cultures and needs.
- **Open-source collaboration:** Fab City works to consolidate and nurture a knowledge-based economy around open-source innovations, digital fabrication technologies and distributed digital networks in Fab Labs, makerspaces and open communities. We are working to create a global database of recipes on how things are made, from what and why; a global Fab City repository with projects, products and services aiming for urban self-sufficiency within food, energy and materials.
- **Fab City Prototype:** They function as an experimentation playground to implement, test and iterate innovative business opportunities at the local scale in cities' neighborhoods and

create open markets for products and services that support the development of an inclusive circular and regenerative economy. Their immediate outcome is establishing the necessary urban frameworks and lighthouses to guide policymakers to scale the results to metropolitan and bioregional levels.

- **Metrics:** Establishing metrics to evaluate the impact of each participating city or locality. We are currently developing the Fab City data dashboard with common standards, and to share best practices in terms of local production.
- **Fab City Full Stack:** It intends to make the mission of Fab City operative by enabling the movement of bits of information globally and atoms (materials) locally. The Full Stack helps cities and policymakers interpret the ambitious Fab City vision. It also guides them to implement it in a multiscale and ecosystemic approach, as well as develop policies that enable locally productive cities.



The Fab City Global Initiative is designing, promoting and articulating all these strategies to be able to shift to a model where cities and regions are resilient, productive and self-sufficient in order to respond to the challenges of our times and to recover the knowledge and the capacity to make things, to produce energy, to harvest food, to understand the flow of matter, and to empower its citizens for them to be the leading agents of their own destiny.

Policy recommendations

Fab City's approach helps city officials and public administrations to enable locally productive cities in collaboration with local communities, companies and institutions, revitalizing manufacturing infrastructure and incentivizing a regenerative economy by design.

With its inherent zero waste and carbon reduction goals, linked to education, innovation, skills development, and the creation of employment opportunities and livelihoods through the relocalization of manufacturing, the Fab City approach contributes to achieving a range of city objectives.

Becoming a Fab City involves working on specific strategies. Below, structured based on the Fab City Full Stack framework layers, a set of policy recommendations are presented to guide the development of Fab City strategies:

Advancing the local manufacturing ecosystem
Incentivize local production by building an advanced manufacturing ecosystem. This means developing a local network of Fab Labs and mid-scale production centers connected to the larger global network of supply chains, sharing knowledge, best practices, and projects.

Educating for the future
Incorporate a stronger emphasis on learning-by-doing in the educational system and curricula, and engage all levels of education in finding solutions for local needs through digital fabrication technologies. In addition, support new educational distributed programs that help develop creative skills in learning environments where experimentation, prototyping and hands-on experience are just as important as books and theoretical knowledge. Citizens can positively impact their context if given the tools to activate and build new foundations within their communities.

Incubating social and entrepreneurial projects
Develop or connect existing policies that nurture social and entrepreneurial projects that strengthen the Fab City's principles (locally productive, circular and regenerative, experimental, open-source, sustainable development, people-centered, participatory, inclusive). Support projects that contribute to transforming the existing productive paradigm at multiple scales, from domestic to global contexts.

Community-based policies
Local government and civic organizations, start-ups, universities, and other organizations must work together in order to make a cultural shift that promotes the empowerment of cities and their citizens, and enables a fair transition to a new social and economic model. The collaboration between governments and civil society should be promoted, and community hubs, such as Fab City Hubs, should be incentivized as playgrounds for new innovative urban actions.

Prototyping the Fab City model
Developing a favorable legal framework for Fab City projects is crucial to be able to prototype the Fab City model on various scales, such as a neighborhood, but also the city itself. Prototyping on a smaller scale means incentivizing different projects in a territory related to the increase of local

production, sustainable and resilient agriculture and food systems, renewable and clean energy, inclusive trade, among others. In other words, the aim is to establish the necessary urban frameworks to transition to a low emissions and climate resilience economic model (on security of water, food, energy, housing, job, as well as health and wellbeing). This way, lighthouses are created to guide policymakers to scale the results to the metropolitan and bioregional levels.

Applying bioregional strategies

Bioregions allow us to operate on a territorial scale large enough to understand cities beyond their artificial, physical, or political limits. It's important to develop policies that have a bioregional approach to the transition to a new productive model, which can help improve the relationship humans have with other species. Any intervention made in cities, regions, or any other type of settlement, needs to recognize the multi-species approach.

Developing knowledge transfer mechanisms and metrics

Incentivize capturing the ´bits´ (information, knowledge, design, code) produced in the local contexts (e.g., fab labs, fab city hubs, neighborhoods, bioregions) and generating the capacity to analyze this data to inform policymaking. In addition, enabling the mechanisms to share knowledge between local and global networks is fundamental for governments, as it is key to promoting the transition from PITO to DIDO. Therefore, it's fundamental to support sharing this knowledge through open-source platforms. Moreover, policies should develop or support the development of metrics to measure progress for cities and regions to produce (almost) everything they consume before 2054.

The Fab City Global Initiative

Launched in 2011, the initiative is a collective of civic leaders, makers, urbanists and innovators working on shifting the urban industrial paradigm to one that better supports life on Earth. In 2014 the mayor of Barcelona launched a global countdown of 40 years for cities and regions to produce (almost) everything they consume by 2054. The Fab City Global Initiative is enabling this through the collaboration of a globally distributed network of diverse contexts that prototype local approaches to meet this challenge. The Fab City Network has grown over the years, including not only cities and urban areas but different types of human habitats, incorporating rural areas. Currently, 49 Fab Cities, Fab Regions, Fab Nations and Fab Islands worldwide are part of the network.

The Fab City Global Initiative comprises the parts: a growing network of cities, regions and countries (the Fab City Network) and a collective of thinkers, makers, and innovators (the Fab City Collective), which are guided and supported by the Fab City Foundation.

To learn more about Fab City, we recommend reading:

- Fab City Whitepaper
- Fab City Manifesto
- Fab City Handbook
- Fab City: The Mass Distribution of (almost) Everything (2018)
- The Fab City Full Stack: A Multiscalar Framework for Distributed Production Strategies in Cities and Regions (2022)
- Fab City: Designing Emergent Realities (2022)

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