100 YEAR HYPER-URBANIZATION

THE CREATION OF SUSTAINABLE DENSE CITIES

THE CHALLENGE

Building and rebuilding cities worldwide to support hyper-dense populations in ecologically sound communities

THE SHAPE OF TRANSFORMATION

From strategies of enclosure to open strategies for the shareable city

In the early 1900s, the United States reached a critical mid-point: half the country's population had migrated into its cities, creating unprecedented ghettos and driving the high-rise metropolis. In the 2000s, the world as a whole reached the same midpoint, with squatter settlements as dense as some of the most tightly packed high-rise districts. Demographers expect this great urban in-migration to continue for three or four more decades before urban population begins to slow by mid-century. Under this pressure, strategies of enclosure-from gated communities to private secure underground malls to imprisonment of criminals-will all succumb to extreme stresses, and many cities worldwide will fall deeper into the morass of the "feral city." As former White House advisor Richard Norton defined them, feral cities result when governments fail to provide health, sanitation, energy, and legal infrastructures. Urban theorist Geoff Manaugh describes these cities as "spaces of illiterate power-strength unresponsive to rationality or political debate." These enclaves represent an ultimate failing of the notion of citizenship in a social contract. They forfeit the benefits of human community.

But even as centuries-long practices of urban enclosure pose growing challenges to civic health, a host of leapfrog cities with ambitious leaders and engaged citizens are taking visionary steps to shape a new, more open city. These cities—many in the Global South—are bucking the centuriesold trend of deepening enclosure of physical and social space and are pioneering new forms of technologically empowered sharing. This shareability revolution will dramatically change how we think about transportation networks, information infrastructures, food systems, and ultimately, citizenship by the end of the century.

Already, we see the potential of open cities, where official data has been opened to the public. Urban hackers are creating applications for everything from tracking potholes in streets to mapping the cost of prison populations by their neighborhood of origin. In shareable cities, peer-to-peer (P2P) relationships among individual citizens will not only drive a new collaborative economy in which infrastructure follows patterns of human connection. They will also invigorate participatory forms of governance, with municipal decisions made by teams of constituents and experts-and deliberative democratic processes rooted in sophisticated social media technologies.

More agile and often more economically dynamic than their host nations, these open cities will continue to be challenged by poverty, crime, and rapid population influxes. These very problems, however, will spur rapid iteration of transformative innovations as citizens and city leaders experiment, side by side, toward new urban models. Out of such civic laboratories will emerge the resilient city of 2100.

-David Harris



THE CORE DILEMMA

The core dilemma as cities evolve toward more open, emergent structures—both physical and virtual—will be balancing the pressures to enclose new kinds of spaces to create short-term value versus the potential to reorganize the city as a shareable platform for creating long-term sustainable value.

Dilemmas typically take shape when short-term benefits mask long-term costs – or when long-term benefits require short-term costs. These are particularly acute when one group experiences the costs while another experiences the benefits.

SHORT TERM

Costs

- High investment costs of public transportation, water, and energy infrastructures
- Loss of tax revenues and aid funds from large infrastructure projects displaced by open-source solutions
- High political cost of displacing legacy practices and players
- Large-scale indebtedness in a transitional economy: loan defaults at all levels
- Cost of educating populations to a level of urban literacy sufficient to participate in political and social forums

Benefits

- Rapid, iterative innovation in open structures to accommodate populations in flux
- Increased connectivity of urban populations with shared concerns and shareable resources
- New business opportunities for diverse entrepreneurs who leverage open urban platforms

LONG TERM

Costs

- Increased poverty and vulnerability to disasters, disease, and terrorist attacks as feral cities proliferate
- Lack of resilience of enclosed systems, especially enclave communities
- Expansion of organized crime into legitimate markets

Benefits

- A culture of citizenship with increased engagement at all scales of urban life, from the neighborhood to the bioregion
- Locally optimized social services with integration of citizen-sourcing
- Improved responsiveness to hyper-local crises

HYPER-URBANIZATION

New forms of enclosure create new value

SIGNALS



conference on Ecologies of Well-Being, June 2011

The built environment – rebuilt

As U.S. cities grow, nearly half of the total built environment will be new by 2030.

The new company town

A Russian developer is

building an entire city in

Kenya as a private enterprise.



tatucity.com

HYPER-URBANIZATION KEY FRICTIONS

THE INNOVATORS

Citizens vs. **Developers**

- Increased transparency of urban data drives greater scrutiny of development projects.
- Pro-poor, eco-centered, and commons-based planning processes generate novel approaches to architecture and planning.
- Participatory governance technologies go viral, with shadow governments of engaged citizens taking hold alongside legacy institutions.
- Participatory budgeting spreads rapidly, in many forms, to engage the public in setting urban priorities.
- Private cities built by foreign investors give new meaning to "the company town."
- Shopping mall cities, with developments built around global retail businesses proliferate-as do valuesbased communities.
- Cities in flux look to a new generation of small businesses focused on local identity to build their urban brand.
- Smart networks of public transport adapt dynamically to real-time transportation needs.
- Participatory architecture converts health-hazard slums into new spaces of citizenship.
- New cooperatively structured financial instruments stimulate capital-intensive shareable development innovations.
- Criminal networks and cartels invest in their own feral cities.

THE PLANNERS

Bioregional Voices vs. Flat-World Visions

- Transfer of development rights (TDR) strategies, while imperfect, create walkable cities, restore creeks, and focus on liveable density.
- Cities cooperate globally to implement comprehensive climate-change plans.
- Climate-change ratings that measure preparedness for sea-level rise and extreme climate events disrupt real estate markets in cities worldwide.
- Lifecycle assessments for cities drive urban green rankings.
- Legacy cities keep building on top of outmoded infrastructures, compounding already tragic urbanization patterns of sprawl and flight.
- Suburbs aligned with transit hubs become new centers of distributed growth and offer quality of life alongside local economic opportunity.
- Longer and longer commutes by private vehicles tie bedroom communities to growth poles.
- Migration flows reverse themselves, as "source" cities and countries become "destinations" for innovation.
- · Cities leverage sensor-based citizen monitoring to create local and regional profiles for environmental, health, and even emotional well-being.

THE STRATEGIES

Open Platforms vs. Proprietary Solutions

- DIY urbanists craft opensource tech solutions that are shared across cities and countries.
- Big data becomes collaborative as open-source cities cultivate a hacker ethic, ubiquitous connectivity, and citizen-driven technology.
- Urban bike-sharing programs saturate cities with carbonneutral transport as bike lanes proliferate.
- Helicopters and successor flying vehicles remove elites completely from public spaces.
- Bulletproof cars become the norm for the middle class in feral cities.
- Surveillance camera footage becomes public domain, driving open surveillance innovations.
- Private security firms compete with open approaches to community policing.
- Bike- sharing programs fill transport gaps to create carfree megapolitan experiences across webs of cities.
- The cohousing movement takes hold across generations.
- Open mobile applications create opportunities for continuous census-taking.



HYPER-URBANIZATION

City governments lead multi-stakeholder experiments

Open-source culture

Brazil has funded over 600 public "cultural hotspots" running on free software and recycled technology, with a goal of spreading open-source culture.



cultura.gov

Shareable city policies

From shareable rooftop gardens to shareable workspaces, commercial spaces, financial platforms, and governance, Shareable.net identifies key policies that can support-or hinder-the evolution of the shareable city.



shareable.net

10 YEAR THE BIG BUILDOUT

The next decade will see the largest transformation of our built environment ever. As Arthur C. Nelson of the Brookings Institute points out, "Nearly half of what will be the built environment in 2030, doesn't exist today." With this scale of new construction comes an unprecedented opportunity for urban innovation. Moreover, this projected buildout comes precisely at a time when real estate markets are in disarray, when climate change threatens many of the world's great coastal cities, and when new technologies are giving voice to newly urban populations. These conditions set the stage for a decade of high friction and high drama as citizens clash with developers, as local sentiments conflict with global mobility, and as new kinds of commons compete with private enclaves to define a new kind of city—as well as a new kind of citizenship.

THE INNOVATORS: CITIZENS VS. DEVELOPERS

For many decades, citizen participation in city-level government has been anemic around the world, while business operators—especially real estate developers—have thrived in a low-scrutiny political environment. Over the next ten years, open-data initiatives will not only create a new transparency around development interests. They will also allow citizen participation to evolve from the fringe efforts of today's urban hackers to broad platforms that engage people more seamlessly in shaping their environment. Newly empowered citizens will face off with legacy interests as they increasingly take action to control their own cities, whether they are mapping water flows or tracking the infrastructure of trash removal, gaming redevelopment projects for propoor interests or deploying alternate Internet and telephone networks. Out of this fray, a new kind of civic leadership, working to craft multi-stakeholder solutions, is already emerging.

THE PLANNERS: BIOREGIONAL VOICES VS. FLAT-WORLD VISIONS

As traditional models of urban development face declining stores of money, energy, and water—as well as increasingly entrenched squatter settlements—urban planners will follow divergent paths. On one hand, big infrastructure projects, massive freeway expansions, and sprawling housing starts will take advantage of funds already committed. These investments are slated to build out cities in Africa, Asia, and Latin America with much the same flat-world blueprints that have defined large Western cities. On the other hand, bioregional advocates will leverage sensor technologies and highly connected citizens to promote new lightweight, context-aware cities, with a careful eye toward integrating urban structures into regional watersheds, foodscapes, and greenbelts. Arguing that geological, topographical, climactic, and biological surroundings will be seen as the key assets of any city, they will develop bioregional indicators of urban health. Over the next decade, debates about these alternatives will move from the academy to city hall and even into the streets.

THE STRATEGIES: OPEN PLATFORMS VS. PROPRIETARY SOLUTIONS

Around the world, cities are opening their data streams: demographics, transportation, health, crime, and other data essential to running any contemporary city are increasingly available to both public innovators and private enterprises. But even as some cities continue to commit to decadeslong contracts with professional data providers, analysts, and software developers, others are creating the platforms for DIY efforts. These hackers are often outpacing the professionals with applications for everything from crowdsourcing city services to deploying disaster relief phone networks. As municipal budgets around the world shrink, cities will turn increasingly to open solutions, but not without significant displacement of urban employees and taxable profits. This shift will ultimately create a feedback loop that favors new open-economy models.