Communication Building City Identities: Communication as a Key Enabler for Dynamic Urbanism in Smart City Environments

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Abstract
Why are some cities so appealing, despite their weak quality of life indicators? Dynamic cities like New York, Mumbai and Barcelona rank poorly in some life standards indicators, despite thriving economically, being specialized workforce magnets and innovation sources when compared to neighbour regions. In a fast-paced, mobile world, where innovation is one of the key economic growth sources, it is a common belief that cities should develop unique identities in order to appeal to professionals that can enhance their economic importance. The usual strategy to building city identity, based on physical interventions to develop urban dynamics may be useful, but it usually demands time and resources that, subject to political demands, may never become operational. Digital technologies can help to build a new framework, in which communications and feedback practices build information constructs that enable citizens to better interact with almost every service of their urban context, suggesting and demanding changes that can develop a new, collective urbanism.

Keywords*:* communication, urbanism, smart cities, innovation, identity

Introduction

Much has been said of a dynamic, connected world, in which wireless technologies and home offices would widen the possibilities for remote work. In this techno-utopia, small towns would blossom, enriched by the inflow of talented professionals coming from metropolitan areas, tired of the everyday hassles of big city life.

The reality, however, is quite the opposite. Metropolitan areas are still —and there is a belief that they will continue to be— places of bigger economic opportunities, better education, greater communal safety, wider individual self-expression, improved accessibility and better health facilities. Being such attractive poles, it is of no surprise that they continue to be the world's engines of economic growth, accounting for roughly 70% of global GDP (McKinsey Global Institute Report, 2011).

This makes little sense. Why are some —by no means all— big cities so appealing, despite their weak social and development indicators when compared to neighbouring areas? Taken rationally, some global "dynamic cities", like New York, São Paulo, Mumbai and Barcelona don't measure up to their success. The results of global inquiries like *Numbeo* (2017) and *The World According To GaWC* (2016) are self-evident:

Table 1: The World According to GaWC (2016)

POWER OF ATTRACTION	
New York	Alpha ++
São Paulo	Alpha
Mumbai	Alpha
Barcelona	Alpha -

Table 2: Numbeo (July 2017)

QUALITY OF LIFE			
New York	126,44	Raleigh	203,01
São Paulo	71,85	Curitiba	125,52
Mumbai	73,12	Pune	121,72
Barcelona	127,9	Malaga	179,26

The research *The World According to GaWC* (2016) shows that New York and London are the only two cities considered *Alpha++* cities, meaning that they "*stand out as clearly more integrated than all other cities and constitute their own high level of integration*" in terms of power attraction. The same research ranks São Paulo and Mumbai as *Alpha* cities and Barcelona as an *Alpha-* city, asserting that the three cities are "*very important world cities that link major economic regions and states into the world economy*". *Numbeo* (2017), on the other hand, uses dynamic data to show that those cities have infrastructure issues and rank worse in terms of quality of life than other cities in the same region, as shown in the table above.

So how can a "dynamic" city be built? The usual urbanist strategy is to build infrastructure projects with the intention to change the population view of their city and, with this change, attract new talented professionals that may boost the economy.

This policy is not only expensive, but also risky, for it tends to build landmarks that also act as "trademarks", in which an innovative shape, showy enough to become part of the city image, may not address the true problems faced by their inhabitants. They may even have the opposite effect.

Cities as collections of people

Geoffrey West's work[1] shows that larger cities create more wealth, more efficiently, than smaller cities. These economic results usually lead to attracting more residents, which makes them grow bigger and accelerate wealth creation. It is a self-reinforcing process, that usually results in an ever-increasing demand for resources. Like many industrial processes, it enabled the growth of the industrialized world in the eighteenth century; it is powering the growth of cities in emerging markets today; and it is driving the overall growth in global population.

But cities like New York, São Paulo, Mumbai and Barcelona are not universal magnets for all kinds of business professionals. They appeal mostly to young, creative and dynamic professionals, usually in the start of their careers, able to invest a lot of time and effort to build a reputation. Seasoned professionals, with families and school children, are not as fascinated by metropolitan life as their young counterparts[2]. An economic hub may not be appealing for everyone. But by the way most cities are marketed, many believe they are "missing" something by leaving these cities.

The overvaluation of life in economic hubs has a perverse effect: small towns are being emptied, while big cities have infrastructure issues to cope with. Contrary to the commonly held belief that densely populated urban areas should be more sustainable than less concentrated rural settlements, for everything is closer together, cities are far from efficient. They account for more than 75% of the consumption of nonrenewable resources, and create around three quarters of global pollution (Kamal-Chaoui, L., & Alexis, R., 2009). Buildings alone account for nearly 40% of the total energy consumption in the United States, including 70% of the country's electricity, and 38% of carbon emissions (U.S. Green Building Council, 2014). With a global population explosion underway cities face the challenge of becoming unmanageable. In some places this already happened[3].

Growth is happening too rapidly for many infrastructure services to cope. City authorities are sometimes being stretched to a breaking point in their endeavor to meet basic requirements such as clean water, adequate waste treatment and enough supply of energy and food.

But no matter how hard some of the infrastructure problems a city may face, their inhabitants tend to be highly tolerant. It usually takes a great disappointment to leave a city, most of the time to come back sooner than expected[4]. Among the main reasons

[1] Some of Geoffrey West's ideas are condensed in a paper of Bettencourt, L.M.A., Lobo, J., Helbing, D., Kühnert, C., & West, G.B. (2014) and in an interview recorded by EDGE Magazine in 2011.

[2] According to the Unites States Census Bureau (2017), net domestic migration to New York City metro area (which includes the five boroughs plus slivers of New Jersey and Pennsylvania) is down by a whopping 900,000 people since 2010.

[3] In 2013, the 11 million people of the Chinese city of Harbin were forced to face a citywide shut down due to poor air quality, reported by *Reuters.*

[4] See The New York Times article (Hu, 2006) and many texts about it (Botton, 2013).

to stay (or to come back) are the usual suspects: business opportunities, personal ties, school for the kids… but like a lover or an old friend that, despite all personal mistakes, one can't live without, cities have *personalities*, and their characteristics can be a strong attraction - or repulsion - factor.

No matter how efficient and/or durable their buildings and infrastructure may be, it is their inhabitants who make its true identity. Collections of people gathered together by many reasons, cities are accumulations of tastes, background stories and personal desires. These are the building blocks to a rich, complex, and challenging urban space, Being a collection of interacting people, a city identity cannot be simplified to a straightforward identity. Their personalities are complex, contradictory and, with conflicting goals. Like a kaleidoscope, at each glance new images appear, creating surprising combinations from the same predictable elements that they are made of.

Usually portrayed by the media and playing an important part of a metropolis mythology, the young, dynamic professional is not the only dweller of a city. People of many other ages and from diverse walks of life are equally important to build a true commodity: singles, couples, mothers, grandparents, unemployed fathers, independent artists, small business owners, schoolchildren, misfits, loonies, visionaries, blue-collar workers, salarymen… a city identity changes all the time. Places whose outward form may thus appear permanent and universal are founded on the experiential, associational, and ephemeral nature of dwelling and being.

It is, therefore, almost impossible to define an ideal city because there is no such thing as an ideal population. This is a myth, an abstraction derived from consumer culture. The same way that advertising agencies develop the fiction of an "ideal target market" to promote electronic gadgets, apartments, cars etc, most of the city image is directed to a constructed ideal inhabitant, usually excluding the rest of the population that enables the very existence of this minority. The mythic image of the dwellers of Rio, Tokyo, San Francisco or Paris, when taken rationally, shows how impossible a city made only of one kind of personality is.

Cities have to develop their complex identities in order to appeal to empowered citizens who can enhance their potential, instead of falling prey to a single, artificial, persona. They are messy, complex systems, and it is very hard to understand them without methodological and epistemological processes. Given that much of what is perceive on urban dashboards is sanitized, decontextualized, and necessarily partial, it is important to wonder about the political and ethical implications of this framing. In a context of global mobility, cities strive to differentiate themselves, emphasizing their economic, cultural, physical, sometimes even climatic advantages. But they shouldn't be regarded as consumer products, but living environments that have to develop efficient urban design and management of core services.

Jane Jacobs[5] dreamed of a society, but it was a society of a certain conservative cast, based on function and ultimately on order. It was a society of productive, social, mutually supporting individuals. It was a society composed largely of well-adjusted libertarians who prospered within the dominant economic framework and who would unite to pursue their common self-interest — specifically, the preservation and

[5] See Jacobs (1961) and Page, M., & Mennel, T. (Eds.) (2011).

continuation of their shared social environment, their neighborhood. It posits a healthy neighborhood as a kind of panopticon, with an intentional lack of privacy and anonymity. Yet more important, it seems to exclude significant dimensions of actual urban experience. Where, in these idealized neighborhoods, are the lonely, the unhappy, the unwell?

Cities are materialized services. Like all services, they have specific contexts. They are emerging bodies that are born, grow and die because of the quality of the services provided[6]. In a world increasingly collaborative, cities are becoming action enablers, and their integrated urban infrastructures resemble a single, dynamic and tunable service. It is, therefore, fundamental to investigate to whom the city interfaces speak, who it excludes, why are them excluded, and how the situation can be reversed. The public arenas in which most human and institutional interactions happens is, since the Greek polis and the Roman civitas, the most suitable places for human interaction. Nowadays the public arena is being relocated from the plazas to the Internet Cloud in such a certain way that makes most cities which don't have clear identities to almost lose their meaning.

Why should a city search for its identity?

Cities are a strong component of someone's identity. Informally speaking, it's usual to refer to someone as coming from a city, not from a country. That is, if this city is somehow remarkable. In the U.S., it's not unusual to know that someone comes from New York or Los Angeles. But if the same person comes from a place like Boise, Idaho, the city is hidden from the identity, and the same person becomes an "american". The same can be said about Madrid and Barcelona in Spain, London or Manchester in England, Paris or Marseille in France.

This identity to the city is somehow expected, for the city is where identities are built. In every neighbourhood, on the sidewalks of every street people walk, meet and exchange experiences essential to build their culture. Therefore, it is essential to grasp the image that a city inhabitants make of it to understand their context and expectations, and from that, their expected reactions to any intervention. A city usually reinforces and supports the actions of their people, suggesting possible behaviors and actions according to the place lived.

The main model of a "contemporary" city is the one belonging to the American metropolis: a world that celebrates impersonality and disengagement and lays the groundwork for a culture of selfishness, competitiveness and individualism; places where significant economies revolve around the touristic gaze (what there is to see) and the culture of celebrity (whom one might see there).

New York City, one of the most typical examples of this kind of both dynamic and glacial community, owes part of its identity to a work of art: Andy Warhol's *Factory* (Watson, S. 2003, pp. 253-254), a mix of creative studio and happening place was a piece of work in itself. At the same time an unstable and upsetting environment, the very messy vitality of the place showed one way in which a group of individuals could come together, all the while pursuing their own agendas, and generate a

[6] Barabási, A.L. (2002, p. 79) explains the growth of markets following the principles of network theory.

transformative community. It raised the possibility that a cold community, based on self-interest and disengaged from the issues and mentalities and prejudices that tend to build warm, traditional communities, could have more impact in the contemporary city precisely because it recognized and incorporated the essential driving selfishness of urban individuality.

Warhol's choice of a name for his unintended social experiment (for he was no Sociologist nor Urbanist) is rather interesting. It was neither humanistic (being a *factory*) nor street oriented, and not even residential – for it was his workplace, he lived on the Upper East Side. Nevertheless, the community gathered there, and the art, films and music that emanated from it, profoundly transformed the culture of New York and beyond, reinforcing the idea that a big city is where young people go to develop their identities.

It was, in other words, an urban myth that became used as a method of engaging behavioral change. According to Roland Barthes (2002), a myth, no matter if secular or sacred, derives its power from being believed and deeply held as true. What people think, feel, and say about a place becomes more important than the facts that really happened, to a point that can drive the original conditions close to irrelevance. The place described is detached from its original context and substituted by a new one.

But who really gains from this transformation of cities into spectacular arenas (Debord, G., 1997)? Taking Barcelona as a recent example, many of its citizens complain that its rulers transformed the city into a mass tourism product, much more than its built infrastructure is able to adequately support. Some attacks to hotels, restaurants and tourists bus, made by groups contrary of this model, are being reported this summer in the main catalonian touristic cities. The press[7] is calling those acts as *tourism-phobia*. Beyond the protests, that are more ideologic, the result is that many of its original inhabitants are being forced out of the city by high rent and consumer prices (Janoschka, M., Sequera, J., & Salinas, L., 2013). This phenomenon – which is even worse in a very well-known American city, San Francisco (Cervero, R., 2007) – raises some questions, like: *to whom are city transformations built?*; *Is it sustainable to develop infrastructure for just a part of the inhabitants (like tourists or rich technology entrepreneurs), alienating the rest?*; and *How to assess the public response of an urban intervention to avoid unexpected results?*

Bilbao, also in Spain, is a clear example of what may happen when an urban intervention is built without regard to the people already living there. It became so famous that it even coined an expression, the *Bilbao effect*, in which, according to the Witold Rybczynski (2002), *"show-dog architecture, especially in a signature style, is unlikely to pay much attention to its surroundings"*. Architectural monument-making premised on the audaciousness of select works and the invisibility of the larger urbanized environment.

The forces shaping cities today are not municipal agencies but private organizations coming from all areas. In projects of all sizes, real estate developers are managing via "partnerships" to replace city planners and bureaucrats as the chief players on the urban scene. This association is not all bad, for it can help administrations to raise

[7] See some press examples about tourism-phobia: Congostrina, A.L. (2017); Barbería, J.L. (2017); Peter, L. (2017); López Díaz, A. (2017); and Coldwell, W. (2017).

money need to infrastructure work, but in most cases, the lasting effect is of a gentrification and a marketization of urban life, taking city ownership out of their true holders, its original inhabitants.

This Architectural turn to context-less, globalized vision mirrored what had been happening in the mass media for decades. García Canclini (2008) stated that the transformation of cities in spectacle is related to the marketing logic and to the investments attraction based on material and symbolic goods and that this process was emphasized when the passage from the industrial city to the *communicational city* occurred.

All over the world, movements like *Grassroot urbanism* (Davis, H. 2016) try to develop city identity by demanding people participation. They try to leverage the public will to face the challenge posed by market forces that, unrestrained, will have no regrets to build hollow spectacular arenas that expel their original inhabitants - the very ones who built the city identity - in order to build structures artificial like shopping malls, unaware and disregarding of the reality of the place in which it stands.

Identity in Smart Cities

The privatization of cities worsens in "Smart City" contexts, where cities become multi-device user interfaces. Many city governments have already developed web portals to showcase their open data, and host competitions, usually resulting in apps that serve a single function — finding the best bus route, for example, or measuring air quality — and that rarely survive without sufficient institutional support. This "widgetization" of urban resources almost always frame users as sources of data that feed the urban algorithmic machines, and as clients of data concerned primarily with their own efficient navigation and "consumption" of the city.

In the near future, streets will be embedded with sensors, buildings will be linked to the internet of things, sidewalks will be (some of them already are) monitored by cameras and drones, and urban infrastructure systems will be tuned by real-time data on energy, water, climate, transportation, waste and crime. These *Datacracies*, data-based political regimes, aim to transform cities into machines, searching for an ever-increasing "efficiency".

It is not clear where does the average citizen fits into this techo-marketed utopia, for most of the work on urban intelligence interfaces seem to take people for granted. The very few that address people at all, focus on them as data sources, feeding the algorithms. Rarely is the point of engagement — how people interface with, and experience, a city's operating system — considered.

The sheer size of city-scale smart systems comes with its own set of problems. Cities and their infrastructure are already among some of the most complex structures humankind has ever created. Interweaving them with complex information processing can multiply the opportunities for unanticipated interactions.

Given the complexity of these networks, and the profound implications their algorithms can have for their urban "subjects," a democratic system should give its

inhabitants means of looking inside its black boxes, even tinkering with its underlying algorithms. It should enable friendly interfaces that allow everyone to monitor those aggregators and protocols, and even deeper levels of the urban stack, including its code and hardware. This kind of empowerment intelligence, like democracy itself, is an ongoing process, never to be considered finished. Cultivating it requires well-managed tools, regulations, and processes in addition to a general cultural outlook, for, in most cases, it is a social experiment as much as an economic one.

The smart city can't be a present-day, redesigned, digital suburbia. This privatization of public spaces in the city has deep significant implications for equity, democracy and rights. Many experts and planners fear that new smart cities may become governed by powerful corporate entities that could override local laws and governments. The economist Laveesh Bhandari (2015) describes smart cities in India as "special enclaves" that would use prohibitive prices and policing to prevent "millions of poor Indians" from "enjoying the privileges of such great infrastructure" [8].

This leads to another important, mostly disregarded question: what role will the citizen play? That of unpaid data-clerk, voluntarily contributing information to an urban database that is monetized by private companies, who takes the city for granted, a fate to be endured? It is a false, dystopian abstraction, to consider urban population as smoothly moving pixels, traveling sheepishly to work, shopping malls and home, visible, measurable and controllable on colorful three-dimensional graphic display. Like all human beings, citizens should be rightfully regarded as unpredictable sources of disorderly demands and assertions of rights.

A "smart city" is an abstraction with unprecedented power upon its subjects. Through information, education, persuasion, coercion or force, it can change citizen behavior and enable rulers to spot opposition. It is not clear what may happen when so much power is yielded to a single, central operator. How can one be sure of the legitimacy of its goals? It can quickly become very dangerous, turning into a condescending, paternalistic, and even dictatorial arrangement, depending on the values built in or emerging from the system. Digital algorithms, like all human-made codes, can bring in themselves strong ideological components, which, masked within technical structures, can be hard to recognize, understand and resist.

But like all interfaces, a "Smart City" dashboard is a communication construct. If it is built with a dialogue-based approach in mind, it could promote the understanding of multiple citizens' (and, therefore, cities') identities. It could also help the inhabitants to interact with their urban context and enable them to complain about their perceived problems and demanded changes.

A datacracy can either mean a *techno-polis*, meaning a technology-enabled community; or a *technopoly*, a dystopia that Neil Postman warned in 1992, meaning a society in which technology is deified. In which, according to the author, *"The culture seeks its authorisation in technology, finds its satisfaction in technology, and takes its orders from technology."* Despite being 25 years old, this assertion couldn't be more adequate to present times.

[8] See also India's Special Economic Zones Act (2005), allowing for exclusion rules in the new planned Smart Cities.

It is undeniable that the digitization of metropolitan infrastructures is both desirable and needed, but the way it may be performed demands consideration. A mechanistic approach, focusing mainly on databases and predictive analytics risks ignoring the subjective values that make communities lively and diverse places. Besides raising concerns about privacy and surveillance, this approach may increase social fragmentation, inequality, intolerance and many psychological illnesses that are hard to measure, such as depression and loneliness.

A digital "revolution" is less about the physical world and more about how the urban infrastructure and its inhabitants will communicate with each other in productive ways. Beyond data and analytics, smart city information and communications technologies approaches need to tap into the organic flows that make up a living city. A true digital revolution has to be less about the physical matter of cities and more about how the infrastructure and its inhabitants will communicate with each other.

It is not clear how will systems adapt to the vagaries of human behavior and still deliver the promise of high efficiency. There is nothing stated in a quantitative approach that makes it immune to biases, rather the opposite: it is not uncommon to make assumptions and justify decisions based on data reports. It is a way of thinking that may lead to serious dangers, including the misinterpretation of data sets; algorithmic shortcomings ending up in systematic errors; coincidences understood as correlations; and interpretation biases towards finding data points that reinforce beliefs.

The main risk of trusting social, ethical, moral or political issues to a bureaucrat, albeit human or technological, is its indifference to any concerns outside its area of specialization. Subjects in which efficiency is not a measurable value, like citizenship, education or human relationships tend to be ignored. When situations arise demanding some flexibility in the established rules, the results tend to be disastrous.

When users don't come into contact with the operating system, but merely reap its rewards, the result is its obfuscation. Their operators quickly become familiarized with its responses, assuming it is the "new normal" and start to depend on its recommendations without questioning their purpose. In a political system, this may eradicate any political opposition.

Modern technologies may enable urban citizens to retrieve information about the mechanisms and invisible infrastructures that make the city work and suggest new approaches. The more visible these interfaces and their interaction are, the easier is to call attention to underrepresented populations and urban problems that are filtered out of whitewashed and abstracted city renderings.

The citizen's right to the digital city strengthens the role of cities in a deliberative democracy. Private investment may shape cities, but social theories and laws are what shape private investments. First comes the image of what is wanted, then the machinery is adapted to turn out that image. The financial machinery has been adjusted to create anti-city images mostly because societies believed this would be good for its inhabitants. This mindset is now changing, being replaced by the idea of

lively, diversified communities, capable of continual, networked improvements; and the financials are gradually being adjusted to this new reality.

Communication and engagement

The creation of an effective community requires a shared sense of purpose. But in truly complex cities shaped by many agendas and diverse populations, shared purposes tend to arise only among narrowly like-minded individuals. Mobilizing people with shared stakes and beliefs is difficult, and urban complexity inherently diminishes the homogeneity that encourages such solidarity.

The major problem with the consumer culture is that it regards people as a generic simplification average, not considered able to make any decision beyond purchase and usage. In modern day social media, algorithmic structures try to suggest and predict behaviors based only on user preferences, which tend to reinforce worldviews and foster a culture of selfish and radicalized attitudes. It tends to increase habits and preferences, instead of stimulating collective behavior. In doing this, it restricts people's ability to see different viewpoints. That may create happy consumers, but it hurts democracy. A healthy media ecosystem is usually based on an informed public, able to understand —and sometimes oppose— to most of what is presented, instead of underlying algorithms powering recommendation engine that reinforces individual values as true. This attitude obstructs the view of the real city, leaving citizens with no choice but to be immersed in themselves, strengthening a primarily egocentric position and an instrumental approach to the city.

In Scientific American's special issue on tomorrow's cities, Carlo Rotti and Anthony Towsend (2011, September, p. 44) argue that smart city planning needs to focus on people, not gadgets. Planned smart cities, according to the authors, will never succeed, because heavily planned smart cities are too inflexible, locking people into systems that can't be adjusted to individual needs and uses of technology.

Rather than focusing on hardware, city governments, technology companies and urban planners should exploit a ground-up approach in which people become the agents of change. With proper support structures, citizens can address problems such as energy use, traffic congestion, health care and education more effectively than centralized dictates. Residents of wired cities can use their distributed intelligence to devise new community activities, as well as a new kind of citizen activism.

Our proposition is to use communication strategies to reverse the top-down process. First, a communication strategy is built to understand citizens views and perspectives of their city. Then, a public dialog is built to create an ongoing conversation on participatory city development. A communications-based approach can build information constructs that reflect city identity strategies, enable citizens to interact with their urban context, and empower them to demand changes. Engagement is key in this process. In a social media world, everyone has the right and the power to express opinions and to collaborate.

But to engage also means to assign public responsibilities to all participants. Unlike what is preached by consumer culture, which focuses only on people's rights, it is

important to define one's obligations toward the common good. Under this perspective, citizens tend to hold a position as co-responsible for all laid urban plans.

A smart city is one in which the seams and structures of the various urban systems are made clear, simple, responsive and even malleable via contemporary technology and design. Citizens are not only engaged and informed in the relationship between their activities, neighborhoods, and urban ecosystems, but are actively encouraged to see the city itself as something they can collectively tune, in such a way that it is efficient, interactive, engaging, adaptive and flexible, as opposed to the inflexible, mono-functional and monolithic structures of before. The interface acts as a translator, mediating between the parties, making one sensible to the other. It is more semantic than technological.

Instead of coherence, we need a diffuse and diverse sense of the city. Making places cannot be just about physical creation and destruction; but is also about observation, narrative, association, and ritual, in a simultaneity of archetypes, models, ideals, and performative tactics.

Concluding remarks

It is essential to dismiss the "ideal city" concept before the digital infrastructure of smart cities freeze urban dynamics into hermetic digital codes and processes. Before deciding how to "optimize" a bus route or highway, it is important to debate on whether this route should be optimized. While most of the smart city proposals focus on the means, it is of major importance to ponder about the ends to which these means are proposed. What is the use to make a trip to the office faster when there is no need to commute?

Urban plans must, more than ever before, consider human perspectives and needs as key elements to the development of cities. Despite being a part of the political discourse for decades, the time to turn people's wishes and demands into true, dynamic public policies has come. Social media and mobile devices gave most citizens the right to transparency and feedback. Ignoring it will not only be a political mistake; but also a human rights offence.

A continuous and frequent communication should be a structural part of all the actions put in place, in all its stages. It is the best (and probably the cheapest) way to search for a true city identity, neighbourhood by neighbourhood, street by street, interaction by interaction. With this regard, 21st century technologies may enable the building of true "ideal cities", shown in many ways, colors, shapes and perspectives to every citizen, ever changing, almost behaving like a true living environment.

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