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BEYOND SMART CITIES: It's Time for Urban Sustainable Development

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Since 2008, the majority of the world's population lives in cities. More than 70% of the global GDP is begotten in cities. Icons of the financial markets, cities attract talent, forge creativity, boost entrepreneurship and witness mass consumption. Fast increasing urbanization has become the flagship of globalization. By 2050, UN estimations picture an eminently urban planet with 75% of citizens worldwide, mainly in developing nations. Therefore, cities are the cradle of both opportunities and challenges alike. It is no doubt that cities stand at the center of the biggest global challenges: climate change, pollution and energy; employment creation and economic development; poverty and inequality; sustainability and resilience; crime, safety and security; freedom and democracy; efficient and effective delivery of public goods. With the long term vision to transforming the world into a better place to live, the Seventh World Urban Forum –hosted in Medellin- pledged at converting cities “into in-

clusive, safe, prosperous and harmonious spaces for all”. Against this backdrop, the rationale behind targeting cities’

development seems directly conducive to global development. A better urban future will be better off for the vast majority. Indeed, the core message of the Urban Forum -organized by UN Habitat- advocated cities for playing a central role of the forthcoming UN led Sustainable Development Goals. The new goals will replace the Millennium Development Goals as the framework policy guiding the international development agenda.

The New ‘Pro-Equity’ Urban Agenda

In order to do so, key urban stakeholders –governments, private sector, international organizations, academia, professionals and civil society- emphasized the need to integrate urban equity into development policy. The Medellin Declaration points out eq-

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Cities, as the main capital-drivers, are catalytic in creating wealth and job opportunities but also responsible to address inequality. Applying the principle of equity not only entails treating different people as equal, but also not treating equal people differently.

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Cities meet and learn from each other. They use a peer-to-peer methodology that is useful in uncovering best proven practices and policies in a wide range of urban disciplines.

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uity as “both a moral obligation and a central element of social justice, and becomes part of transformative change”. It argues that the integration of equity into the development agenda can help to better address “deep structural problems and challenges of cities”. At the Declaration, participants call for a Sustainable Development Goal for promoting a “comprehensive and participatory planning”, “that puts people first and fosters social cohesion” and that fosters “gender equality and balanced land development; better urban resilience to climate change and other disasters; and safe, affordable transportation”.

Equity is a normative concept that comes out from the idea of moral equality. This idea conceptually stands up for treating people as equals. This is the core element of the human development approach, which puts people first. Amartya Sen, the ‘father’ of the concept stated that “human development, as an approach, is concerned with what I take to be the basic development idea: namely, advancing the richness of human life, rather than the richness of the economy in which human beings live, which is only a part of it.” The application of equity-based urban development policies and initiatives entails a thorough assessment of which

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policies maximize equality. Reducing inequality is directly linked with greater equity. According to Richard Florida –a global city guru- the term ‘equity’ has two important meanings: the first is the generation of economic value, and the second is “to increase fairness”. That is, how to create wealth and how to distribute it fairly. Cities, as central entrepreneurial and economic engines, are key to both. Florida also claims that “a new UN goal for cities could help to create more inclusive models of growth whose rewards are distributed much more broadly than today”.

The urbanization phenomenon is spearheaded by the aspiration of millions of people in developing countries that migrate to cities in search of better opportunities. Cities, a priori, are a mean that offer more opportunities than rural settlements. Cities attract an affluence of hopeful people from rural communities due to their limited social mobility options. Cities are thought as a social lift, an often the only opportunity for the vulnerable and poorer to a better life.

However, most often cities cannot digest the rural to urban migration spirals. According to UN Habitat, 1 in 3 citizens worldwide live in slums –overcrowded, unhygienic places characterized by high unemployment, pollution, traffic, crime, poor service coverage and fierce competition for resources. Without security, integration, communications, poor access to education, lack of information and limited freedom, cities are likely to become like rural settlements. They can behave like closed and static networks with a spoiled social lift that blocks the access to opportunities. Furthermore, urban inequality has also hit developed nations, especially after the global crisis. The poverty gap is widening. Wealthy cities like New York, London, Paris or

Barcelona have seen a migratory movement with traditional downtown citizens forced to sell or leave their properties and rentals. Affected by the global downturn, they search for a more affordable place in the surroundings of the same city or move to another one.

Likewise, a wave of wealthier people from other cities/countries has conquered city centers that account for the most expensive locations. These elite hubs are normally equipped with the best public (and private) services in town. Migration and inequality are definitely major forces that alter urban landscapes. Thomas Piketty, the popular best-selling author of “Capital in the XXIst Century”, would argue that urban inequality –and thereby equity- is not only a matter of social justice but also an issue that seriously hampers efficient economic growth. According to his thesis, the higher returns on capital that exceed the rate of economic growth threaten to generate extreme inequalities that would constraint economic growth per se. Thus, the New Urban Agenda seems aligned with latest research on growth, wealth and inequality. Cities, as the main capital-drivers, are catalytic in creating wealth and job opportunities but also responsible to address inequality. Applying the principle of equity not only entails

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Decentralization towards local governance: cities and technology at the forefront

Whereas the XIXth was the century of empires and industrialization, the XXth was the century of nation-states and economic growth. At its dawn, the XXIst emerges as the century of cities and inequality. Decentralization –often described as the transfer of power from central government to lower levels of government- is a major topic among the international development community and agenda. More than a trend, it has turned into a reality. Estimates point out that decentralization is being pursued by 80% of developing countries. Local government, with cities at the forefront, is the type of government that most directly impacts on people’s lives. In principle, city governments have a better understanding of citizens’ needs, urban spatial and socioeconomic context, as well as its cultural background. Therefore cities, on one hand, are in a better position to address local challenges via the provision of public services and policies in education, health, economy, security, water and waste management, energy and mobility. On the other hand, they might design better urban policies, plans and infrastructure.

Cities are the fundamental socioeconomic, cultural and political organizing systems of this century. Furthermore, nation-states coordinated action to tackle global challenges has often been disappointing. The failures on climate change and trade in Copenhagen, Durban and Doha, to name a few, have struck a chord in the development community. The international development debate reportedly started to question the effectiveness of such higher levels of global governance. However, a far more organic and tacit movement is coming underway. For the last decades cities, once ignored in matters

of global significance, have been finding ways out to collaborate in the transfer of knowledge, design and development of solutions facing their local challenges. Using a city-to-city approach, they have been shaping a sort of city governance structure.

This governance is based on the concept of learning and networks. Spurred by hundreds and thousands of city-to-city technical exchanges –mutual visits- every year, cities meet and learn from each other. They use a peer-to-peer methodology that is useful in uncovering best proven practices and policies in a wide range of urban disciplines like transportation and mobility, security, energy, management, e-governance and information and communication technologies, water use, and environmental sustainability. Medellín was a city best known for its high criminality rates in the 1990s. Nonetheless, it underwent a deep process of structural transformation through a social urbanism policy that led her to be today a benchmark on urban security and development for other cities in the world. Hundreds of cities in Latin America and beyond learn from the Medellín case and apply the lessons to their own urban development plans. Curitiba is also regarded as a successful experience in setting bus rapid transit schemes, a practice that is followed around the world.

Directly linked to the empowerment of cities and local governance, technological change is driving urban transformation. For instance, opening the “black box” of urban data stored in the hard disks of public computers has been another major breakthrough in city development. Concepts such as Open Data and Big Data refer to the facilitation of public data to public consultation and its processing for a social service-based use. The objective is that society –citizens, enterprises and institutions of any kind- can easily access data with the aim to inform and create new services that increase social and commercial value alike.

Digital urban development therefore plays a key role in city policy design. Based on this principle, cities engaged into establishing cooperation platforms of networking at international level to exchange knowledge and best practices. This is the case of the City Protocol initiative, an approach aimed at rationalizing and documenting a standard system of city transformation based on best experiences and cases in policy, practices and projects. Open and Big Data play a decisive role in applying the Internet of Things (IoT) –or the Internet of Everything as its latest updated version- to city development. It is the ubiquitous connectivity of the Internet to physical devices that capture real-world data and information through sensors. This is the biggest technological trend in the XXIst century. It is revolutionizing the way that society, the economy and cities evolve. It has enormous implications at the economic, environmental and welfare level, to just name a few areas. For example, pollution sensors on a street which communicate with sensors in cars can regulate the cars’ acceleration and speed profile to minimize their emissions. Health sensors can also be incorporated at the home environment. Body sensors monitor patient’s health condi-

tions, which may transfer clinical information on the patient status to a doctor that can intervene, thus fostering greater efficiency. Cisco stated that the IoT generated USD 613 bn of global profits in 2013. David Cameron, UK’s Prime Minister, announced stg 45 m to be allocated in research around the IoT.

Beyond Smart Cities: the ‘Equitable City’

The city driven demand for using and applying ICT and the Internet to address urban challenges is the central idea that spells the concept of Smart Cities. There is still much debate on the definition of a Smart City. The term itself is often approached through different angles depending on the subject and the objective it pursues. The scholars’ view stresses the application of ICT and human and social capital as catalytic investments to fuel sustainable economic growth, quality of life and participatory governance. In a similar fashion, cities’ view emphasizes the role of high technology and ubiquitous connectivity in creating greener cities, better quality of life, fostering its competitiveness and fuel economic development. The practitioners’ view is somehow less holistic. It con-

Equitable sustainable development requires a more holistic conceptualization of urban development hinging upon citizens’ centrality.

ceives the city as a fertile ground for realizing the IoT value through technology-wise innovation for the benefit of a sustainable city. This ground is enabled by a local governance framework designed by cities, fuelling an open environment of information flow and exchanges. Regardless the disparity of views, technology is the common denominator.

Despite the ambiguity of the concept, Smart Cities are also used as a marketing label by companies and cities’ themselves that help guide their urbanization processes and increase its level of competitiveness. Since the early 2000s, the concept of Smart City understood as the new process of urbanization has been quite fashionable in the policy, entrepreneurial and academic arenas. According to recent research provided by Stanford University, there are currently around 150 smart city projects ongoing or completed. Most of them are found in Europe (47), Asia (40) and North America (35). Top IT-based leading companies such as Cisco, IBM, Schneider Electric, Siemens and Hitachi, to name the biggest, have targeted smart cities as its main markets and blue oceans of business development. Furthermore, academia is also increasingly embracing the topic of smart cities as one of the hottest emerging research areas. This is the case of the University College London or the MIT, among others, which are launching postgraduate courses and research lines centered exclusively on the theme.

Therefore, the two most visible benefits of adopting the Smart City concept to urban development lay on the use of technology and markets as drivers of sustainability and quality of life. The concept envisions a future in which tech-savvy cities cre-

ate and deliver better public services in fastest and energy efficient transport services, reduce waste and greenhouse gas emissions, and collect much data that complexities of daily life are potentially to be understood and managed. As City Councils need high technology to manage cities, they are bound to large IT corporations that, at the same time, need cities to deploy its technologies. Therefore, Smart City projects have impelled the development of public and private partnerships that emerged as new collaboration models of urban development and management.

Urban private-public partnerships play a catalytic role in unleashing tech-based innovation, entrepreneurship and economic development. They have converted cities into self-sponsored laboratories of inventions, piloting and testing new solutions. They are paving the way for establishing a new edge in best practice that is likely to be scaled and replicated to adoptable standards at the nation-state and international development level. Cities are becoming more influential. The smarter they get, the more powerful they are. This notwithstanding, part of the Smart City thinkers and community, advocates of the concept, are debating about the effectiveness of the process and the chal-

Cities are dynamic systems that act, interact and constantly change like *local milieus*.

lenges it poses. Wide consensus agreed on a future where cities need to be smart. But, what does really 'Smart' mean? Does technological innovation drive straight ahead to better quality of life? What is the type of sustainable developmental model that society needs?

There are different challenges and risks that might be taken into account with the objective of propelling a transformative city model that links technology with equity. First, an intensive use of technological innovation as the factotum core element of urban development carries out a relevant trade off. The process of utilizing open data and the IoT for designing solutions and services that can improve citizen's lives has a high entry barrier. Not all citizens are equal in the disposition and ability to use data for strengthening their participation to governance structures or smart-based entrepreneurial ventures. Corporations have greater big data capability to catch up the smart city opportunity. A strong pursuit of technological innovation without well-defined and targeted inclusive policies can be risky. It is likely to leave lower income and vulnerable populations behind the opportunity path. The income inequality gap increases and citizen participation can be undermined. As Mischa Dohler, chair professor in Wireless Communication at King's College London, points out, "big data is not enough, it's just half the way". Ensuring a pro-poor access to smarter public services is, therefore, crucial.

Second, the information asymmetries and the high-capability needed to collect, manage and update data infrastructures represents also a drawback for using valuable data that can be transformed to public services' solutions. City Councils are in an increasingly complex position to manage

open data processes with their own capabilities. Thereby, most find themselves forced to outsource these services to the higher expertise of the private sector. But at this point, too much dependency on private initiative and know-how can create a technological loop that compromises the security of data. It risks the system to fail; it discusses the ownership of data storage; and it deals with the issues about its ethical use.

Third, there is the controversy of privacy. Where are the limits of monitoring ubiquitously citizens' information and managing related data for commercial and public use? Tracking citizens, even if motivated by helpful purposes, crosses with the personal liberty people assume in public spaces. The key software and information systems that underpin city services are increasingly ending up in the domain of private corporations. Indeed, as smart city programs become more and more successful, there are higher risks in sorting resources into problems that can be solved with technology. That leaves a high cost of opportunity, as may impede the city to focus its attention on the complex issues and challenges that cannot be fixed with software or an app.

The cities of Songdo in South Korea or Masdar in the United Arab Emirates are often heralded as the poster children of Smart City transfor-

mation. Built from the scratch, they have become a model for developers in Asia, and even for redevelopment in Europe. Led by latest technology and connectivity, a masterpiece of high-tech engineering, the digital revolution allows entire cities to be fully under control. But, to what extent this is a positive development? Dan Hill, CEO of Fabrica and an expert on social urban development, outlines three reasons that argue why a top-down, technology-infrastructure led smart city cannot be the urban model of the future. First, there is a danger in trusting cities that are planned and built only based on algorithms. The logic of engineering does not always match with end-user logic. They lack an organic approach to design based on city development drivers such as connectivity, culture, location, commerce, economic opportunities and entertainment. Second, following a holistic approach to build a tech-based smart city implies a high degree of process optimization. Thus, the design and development tends to be left to a single-company that manages the whole system. This is the case of Songdo, where Cisco would be responsible for collecting and managing waste and water, produce energy, and control traffic. The system's centralization of the entire infrastructure is not a recommendable strategy for governments, which would rather try to diversify it. And third, even a high efficient infrastructure does not necessarily mean that makes a city smarter. Infrastructure is just an enabler –and a very important one– to ease people to exchange, evolve cultures, create communities and foster liveability. But people do not just decide whether to live in a tech-based smart city just because of its efficient infrastructure. In words of the Songdo's International Business District CEO, the city itself is just a normal city with state-of-the art technology that struggles like any other city to attract citizens and firms to settle down.

What's next? From Urbanism to City Sciences

A 'too smart' city, with a single-minded use of technology based on infrastructure optimization only, can even widen inequality, as Saskia Sassen –the author of "Global Cities"- points it out. A Smart City, if not consciously led and managed to make technological and economic development equitable, is like a high-tech version of the 'entrepreneurial city'. Equitable sustainable development requires a more holistic conceptualization of urban development hinging upon citizens' centrality. However, a conscious and devoted effort to turn smart technology into equitable development requires smart leadership. A leadership that is smart is a type of leadership that measures the impacts of policies; grasps a holistic understanding of the inter relations among urban dynamics and processes; and it is highly motivated to assess criteria from the higher conscious level of applying the equitable criterion to urban development policies.

To walk the promises reflected at the Medellin Declaration on promoting an urban sustainable development model inspired by equity, signatories of the declaration have a lot of homework ahead. They should first put on the white hat and start compiling useful information that can facilitate urban policy making. This work could cover three needful areas.

Primarily, little is done in terms of applying systematic risk assessment schemes to urban development policies and projects. There is a strong need to monitor progress, track the causality path throughout devising counterfactuals that can allow to visualize the impact of smart city projects. Up to date, most initiatives are impelled by the benchmark of case studies that have proven successful in a certain city with a given context. Improving the metrics of urban development is therefore crucial. And this should be done not only at the effectiveness and efficiency level, but also evaluating the relevance and quality of the policy design, its sustainability, impact and equity indeed.

Secondly, there is a lack of city categorization. Whereas the United Nations and the World Bank have done a lot of work in analyzing poverty and inequality at a global scale, much less has been studied at the city level, namely development and inequality between cities and within cities. Tim Campbell, in his book "Beyond Smart Cities", finds that cities tend to form learning networks between cities that share similar levels of development, socioeconomic context, and challenges. A thorough analysis of local challenges, the determinants of poverty and inequality and the drivers of sustainable development would largely contribute to clarify the role of cities in addressing global challenges, according to their context and needs. Cities are dynamic systems that act, interact and constantly change like *local milieus*. Innovation arises from multilevel interactions between their actors and also framework conditions within which they operate. Behavior conducive to innovation depends on factors that are defined at the local level. Peter Hall in its famous "Cities in Civilization" and Richard Florida in "The Creative Class" largely dig upon the relationship between culture and innovation. To talk about urban development is to talk about endogenous development.

Thirdly, if the term 'smart' is intrinsically linked to technology, that inextricably leads to a reductionist view of urban development. The application of technology is like the hammer metaphor: it depends on the purpose of its use. For ensuring the pro-equity application of technology to sustainable urban development, a more holistic and profound debate on the role of technology in life is much needed. Urbanism is no longer the science of architects, urban planners and engineers solely. Bringing sociology, anthropology, psychology, behavioral economics and other related disciplines is critical for the evolution of a multidisciplinary framework of analysis that must contribute to evolve from chaos to concept. The 'Smart Cities' buzz is giving way to 'City Sciences'. This is a necessary move for integrating a holistic, crosscutting and structured approach to understand cities as complex 'live' organisms.

As mentioned in the Medellin Declaration, the New Urban Agenda will have a big responsibility in addressing future needs, advancing towards greater social cohesion, breaking down social divides, promoting participatory and inclusive local governance, and fostering sustainable development. However, the urban world must go a way far beyond smart cities if it wishes to equitably walk the talk.

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