

Portable Streets: Smart Urban Solution

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1 ABSTRACT

Throughout the last few decades, smartness has witnessed several forms and approaches. "A smart city is an urban area that creates sustainable economic development and high quality of life by excelling in the urban environment, society and economic conditions" (UNECE 2014). In relevance to an interview with Jaime Lerner "Green cities on the cheap: Low-cost solutions for a sustainable world"; Lerner mentioned "when we realized that 75 percent of car emissions are related to the cities, we realized we can be more effective when we work with the concept of the city. It's through cities that we can have better results". He although mentioned to what he called "portable streets", to create an informal and spontaneous market street life. There are a number of different routes through which smart urban solutions form could potentially be achieved. The paper will review several solutions in relative to low-tech smart urban solutions; as a step which might make in moving urban development closer to a smart urban form. As an effective study, the paper will discuss some examples in order to highlight the importance of "portable streets". This paper therefore, investigates the advantages of this approach as a sustainable and smart urban solution. The result of this research will be found in a number of recommendations on several levels.

2 INTRODUCTION

The Idea of sustainable urban development has been seminal and highly significant among intellectuals and policy makers in the 1990s.¹

“The city is not only a space where structures are placed and where life is lived. Indeed, the city is a vibrant and powerful force for development and it is clear that it exerts a tremendous impact on wellbeing at the global, regional, national and local levels.”Joan Clos, Executive director UN-Habitat.²

Cities are the new hot spots of global environmental change, the leading growth centres of population, consumption, resource use and waste. In cities, everything is closely connected. So problems tend to multiply – and so can solutions. Cities have massive leverage over their ecological footprints, major impacts on biodiversity via habitat loss, pollution, contribution to climate change, over-exploitation of species' populations, and introduction of invasive species. Cities have the option of making smarter choices for housing, transport, energy, green space, water, and waste. Cities must lead the clean energy revolution to combat climate change by supporting renewables, efficiency, smart metering, and green retrofits.³

From several viewpoints, city engineers and technology companies view the city as a complex system with multiple layers. Architects and nongovernmental organizations (NGOs) see the city in terms of people, social inclusion, and a sense of space. Government leaders, on the other hand, view the city in terms of economic growth and new or improved city services supported by policy initiatives designed to effect change. Regardless of their viewpoint, most agree on a common vision: make cities smarter and more sustainable.⁴

3 PROBLEM

Cities and communities around the world face intractable challenges, including: Increased populations: More than 50 percent of the world's population lives in cities, placing massive pressure on city infrastructures (transportation, housing, water, power, and city services). Polarized economic growth, Increased greenhouse-gas emissions (GHGs): GHGs are forcing cities to develop sustainability strategies for energy generation and distribution, transportation, water management, urban planning, and eco-friendly (green) buildings. Decreased budgets: The economic climate continues to place huge budgetary constraints on cities, which are becoming limited in their ability to respond to these pressures. Some scalable solutions that take advantage

¹ CEDERIC PUCH: "Sustainable Cities In Developing Countries" ,pp. 1-4. UK, USA, 2000

² "Smart Solutions for Slums", Corcaid Urban Matters, 2014

³ "Urban Solutions for A Living Planet", Learning Cases, pp. 2, WWF Summary, WWW.PANDA.ORG

⁴ GORDEN FALCONER, SHANE MITCHELL: "Smart City Framework: A Systematic Process For Enabling Smart+Connected Communities", pp. 2-3, Cisco, September 2014

of information and communications technology (ICT) can be mitigated to increase efficiencies, reduce costs, and enhance quality of life. Cities that take this approach are commonly referred to as Smart Cities, or Smart+Connected Communities (S+CC), a concept highly discussed and often debated in urban planning and city policy circles worldwide. There are a number of factors hindering adoption of Smart City solutions: scaling of newer technologies is unproven; technology challenges the existing status quo in how cities are run; and technology is not well-understood across city sectors. However, the main barrier to adopting such solutions is the complexity of how cities are operated, financed, regulated, and planned. Smart Cities, however, present an opportunity to integrate physical city infrastructures—from utilities, transportation, and real estate to city services.⁵

A number of academic studies also explore the fundamental issues of realizing Smart City visions. One recent study, “Understanding Smart Cities: Integrative Frameworks,”¹³ states the need and the dynamics to consider in developing Smart City strategies. These reports indicate that the debate is no longer about why a Smart City initiative is good for a city or what to do (which available options to choose), but instead about how to implement Smart City infrastructures and services, including the importance of a common language and a structured approach to implementation.⁶

The need to reduce humanity’s ecological footprint to a sustainable level is now an emergency, and to stop the rapid global loss of biodiversity. Cities are now the main growth centres of population, consumption, and resource use, as well as waste. This makes them the new hot spots of global environmental change. More than half the world’s population lives in cities. They are responsible for more than 70% of global greenhouse gas emissions. In 1800, only 3% of humanity lived in cities. At present almost all population growth takes place in cities. According to UN projections, 70% of humanity will be living in cities by 2050. Networks of cities are setting more ambitious goals for greenhouse gas emissions than their governments. Cities are taking independent action, often with innovative solutions, pushing governments to follow. In a survey of 100+ learning cases by WWF, there are cities transforming transport, creating walkable and livable environments with better air quality. There are cities protecting nature, taking advantage of ecosystem services vital for water supplies, food security, adaptation to climate change and resilience. We find cities that use waste as a resource, sponsor sustainable consumption through green purchasing, and develop urban farming. There are cities investing in smart grids, and in energyefficient housing. And there are cities promoting renewable energy with regulations, subsidies, and tax relief.⁷

4 SMART CITIES AND SMART URBAN SOLUTIONS

The Idea of sustainable urban development has itself been developed since the mid-1990s. By the late 1990s it is recognized that the scope of this is simultaneously in the economic, the social, the political and the environmental. From a perspective of historical and developmental change, this frequently means that ‘sustainable development’ is in a continuing state of flux that expresses outcomes of the dialectic between the economic, the social, the political and the environmental. To sum up, we can describe the idea of sustainable development as a range of different patterns of growth and social change that are environmentally and socially better than alternative patterns.⁸ But as it is mentioned in the research problem; Cities and communities around the world are now facing challenges which needs smart solutions in many levels in order to lead cities to be smart.

4.1 Defining Smart Cities

There is no unique definition for a smart city. The interpretations and definitions used by different interest groups, stakeholders and regions vary. The impression is often that a smart city is the same as a digital city, and sometimes its meaning is close to that of a sustainable city. While most human activities take place in cities, almost anything can be included within the smart city concept. Smart cities can be seen as systems with flows of energy, materials, services, people and financing. Moreover, urban planning is closely related

⁵ GORDEN FALCONER, Shane Mitchell: “Smart City Framework: A Systematic Process For Enabling Smart+Connected Communities”, pp. 2, Cisco, September 2014

⁶ GORDEN FALCONER, Shane Mitchell: “Smart City Framework: A Systematic Process For Enabling Smart+Connected Communities”, pp.9, Cisco, September 2014

⁷ “Urban Solutions For A Living Planet”, Learning Cases, pp.3, WWF Summary, WWW.PANDA.ORG

⁸ CEDERIC PUCH: “Sustainable Cities In Developing Countries” ,pp. 1-4. UK, USA, 2000

to the economic and social metabolism of communities. Identification, integration and optimization of different energy, transport and data flows in city planning and city management are crucial to creating sustainable smart environments.⁹

Although the term smart city is not focusing on single aspects, a further definition requires identifying certain characteristics for the evaluation. Although the term “Smart City” is not very widely used yet in spatial planning literature or urban research, it is still possible to identify various aspects as a basis for further elaboration. As conclusion the term is not used in a holistic way describing a city with certain attributes, but is used for various aspects which range from Smart City as an IT-district to a Smart City regarding the education (or smartness) of its inhabitants. To sum up, there are several fields of activity which are described in literature in relation to the term Smart City: industry, education, participation, technical infrastructure, various ‘soft factors’. It should be emphasized that we are currently only able to draw a picture of the present state of a city. Still, the path of development is decisive for a smart city and should be considered in further research that builds on time-series data.¹⁰

According to Transform (EU FP7 TRANSFORM) a Smart Energy City is defined as follows:

“The Smart Energy City is highly energy and resource efficient, and is increasingly powered by renewable energy sources; it relies on integrated and resilient resource systems, as well as insight-driven and innovative approaches to strategic planning. The application of information, communication and technology are commonly a means to meet these objectives. The Smart Energy City, as a core to the concept of the Smart City, provides its users with a liveable, affordable, climate-friendly and engaging environment that supports the needs and interests of its users and is based on a sustainable economy.”¹¹

Also according to Caragliu (2009): A city is smart when investments in human and social capital and traditional (transport) and modern (ICT) infrastructure fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance. As it can be seen, the Smart Energy City has been defined very concrete. This because there has been a need to measure the level of “smartness” and at the same time there has been a need to find some key elements which are crucial for becoming a Smart Energy City; These 8 key elements are:¹²

- Resource system integration
- Access to energy services
- Resilience
- Energy Efficiency
- Renewable Energy
- Active and engaged users
- Sustainable Economy
- Smart Governance

4.2 Smart Urban Solutions

Three new global trends in urban development the 21st century has brought it. The first trend, which has emerged against the background of an international consensus on the need to adopt low-carbon lifestyles on a global basis in response to the threat of global warming, is toward “low-carbon cities” that reduce the amount of CO₂ (carbon dioxide) emitted by urban activity. The second, a consequence of the economic progress happening in the emerging markets of Asia, particularly China, as well as in South America and elsewhere, is the concentration of population in cities and the associated new construction of large cities. The third is the trend toward health-focused urban development in response to the aging of urban populations in

⁹ MIMOAIRAKSINEN, Matti Kokkala, “Smart City – Research Highlights”, pp. 6-8, VTT Research Highlights 12, pp. 6-8, VTT Technical Research Center of Finland Ltd, 2015

¹⁰ “Smart Cities Ranking of European medium-sized cities”, Final Report, pp. 10-11, Center of Regional Science, Vienna UT, October 2007

¹¹ of Smart Energy City, Becoming a Smart Energy City, TANSFORM report, pp. 4-5, August 30, 2013

¹² Work Package 1: Final Version, TANSFORM report, March 3, 2015

Japan and other developed economies which emphasizes medical and welfare considerations and seeks to eliminate intergenerational disparities.¹³

Innovative and smart solutions are available in some cities while in others the uptake is low because the impacts of these solutions have not been objectively verified and there is a lack of confidence that the solutions can also be applied in other contexts and cities. The development of smart solutions in cities is largely dependent on procurement decisions made by city administrations and local governments. Public procurement plays a key role in creating demand for innovative and smart solutions to urban challenges. Conventional approaches to public procurement are not favourable for sourcing innovative products and solutions from technology supplier firms and service providers. The complexity of the current major societal challenges, in urban centres, demands the wide-scale deployment of solutions and services based on accurate and timely information. This will allow cities to move towards a sustainable transformation while spending less public resources and improving services offered to its citizens. The implementation of a common performance measurement framework based on a set of relevant indicators, open data applications and decision-support user-interfaces enables stakeholders to learn from each other, create trust in solutions, and monitor progress. Urban planning is traditionally perceived as a complex and time-consuming process. Unclear plans, possible misunderstandings and decision-making without stakeholder participation may cause complaints and delays even in long-prepared projects. New visual smart city planning solutions for illustrating urban projects are needed.¹⁴

5 CONCEPT OF PORTABLE STREETS

According to originally appeared in *The Dirt*. Jaime Lerner mentioned “Every time we try to create a solution, we have to have a good equation of co-responsibility with the public. That means it’s not a question of money and it’s not a question of skill; it’s how do we organize the equation of co-responsibility? We need to work with low-cost solutions” Lerner added “Some places in some cities have become decayed. There’s no life. When that happens, it’s very difficult to bring back life because people don’t want to live in a place like that. However, the moment we bring street life, people will want to live there again. That’s why we designed the portable streets. On a Friday night, we can deliver a portable street and remove it Monday morning. We can put a whole street life in front of a university or any place, bringing street life back”¹⁵ Lerner also discussed his “portable street” concept, a configurable, moveable piece of hardware that enables storefronts to be set up quickly. Inspired by the many bouquiniste of Paris, his portable streets are being tested in Cracolandia, a “tough” part of Sao Paulo, in an effort to bring back street life.¹⁶ The concept of the portable streets is based on the fact that a large portion of today's cities exists in informality, and that it is necessary to find ways to integrate the formal and the informal sectors. This piece of urban furniture allows accommodating street vendors with quality and comfort, adding a new element to the urban landscape.¹⁷



Fig. 1: portable street prototype of Jaime Lerner

¹³ MICHINAGA KOHNO, Yoshihiro Masuyama, Nobbuyuki Kato, Akihito Tobe, “Hitachi’s Smart City Solutions for New Era of Urban Development”, pp.79, Hitachi Review Vol.60, No.2, 2011

¹⁴ MIMOAIRAKSINEN, Matti Kokkala, “Smart City – Research Highlights” VTT Research Highlights 12, pp.10-20-21-30, VTT;L Technical Research Center of Finland Ltd, 2015

¹⁵ <http://dirt.asla.org/2011/03/07/interview-with-jaime-lerner/>

¹⁶ <https://dirt.asla.org/2012/01/27/jaime-lerner-a-city-is-like-a-family-portrait/>

¹⁷ <http://www.jaimelerner.com/ruaportatil-en.html>

5.1 Portable Streets as a Low Cost Urban Solution

The major attraction of any city is its people, its life and vitality. This is clear as the benches with the best view of public life are always the first ones to be occupied; we can see this in the fact that the cafe chairs all over the world are oriented towards the pavement, towards the passers-by. And when choosing between walking in an empty, deserted street or in a busy street, most people by far choose to walk through the busy street, where there is a greater variation of experiences along the way and a greater sense of security.¹⁸ Converting streets into pedestrian zones has become very popular. A project "San Candido a piedi", found better solutions to the pedestrian in public spaces. Creating constant interventions to the city to make it safe, sidewalks and pedestrian paths contribute to pedestrian security.¹⁹

It is important here to mention that a Market street can be a sustainable design solutions; it was selected as a project topic in the ECOWEEK sustainable design solutions in Copenhagen 2013.

Based on many literature review and projects; it can be proved that streets solutions can bring life to people and to decayed urban places. Altmarkt, Cottbus, Germany in previous time was used as a parking lot, which was not an efficient use. Festivals and activities, brought life to it as most people choose to walk where there is a greater variation of walking, buying, interact. Fig: 2, represents photos which shows activities and festivals in Altmarkt; it can be seen that people of the city went to a pleasant place, it's not now just a street or a big space but a street or space for Walking, sale, purchase, and thus reviving the old trade market. These products are made by people and it represents a kind of commercial activity, taking into account the necessity of being more sustainable while taking note that walking is elemental for mobility.

So here what was meant here is to achieve a range of urban benefits at lower costs, where the ceremony is held or upon the street for a night, for example, or a full day to bring life to the street or to the place creating an informal and spontaneous market street life.



Fig. 2: Night Shots for Altmarkt in Case of Festivals and Activities.

Portable Streets approach indeed is not only a monthly or weekly festival; but a weekly activity for maybe two days also not in square but in such decayed streets. Portable Street approach is based on moveable pieces and furniture easy to integrate with streetscape. Infact it is found previously in some examples like bouquinistes of Paris, also it is be found in arabic countries like Syria and Egypt.

"Cairo University sidewalk" could represent a simple example of portable street, it is a sidewalks bookstore which it's main activity is bying books, but as well it does,nt depend on any pieces but just puting books on the sidewalks.



Fig. 3: Examples of sidewalks bookstore in Egypt and Syria

It is important here to mention to the advantages of this approach:

- As Portable Street is a quick and easy solution to make a better life in the street in wich is found.

¹⁸ MALCOM MOOR, Jon Rowland, "Urban Design Futures" pp. 70, Routledge, USA, 2006

¹⁹ <http://landarchs.com/how-to-reduce-vehicular-impact-in-a-city/>

- It brings life and activities to decayed streets and urban places which serve in the urban development of the city without costs.
- It doesn't need any procedures, insurance or any bureaucratic processes to be done.
- It could be oriented to various kinds of products which can represent a source of trading for the street residents.
- It doesn't influence on traffic mobility as it depends on pedestrian mobility.
- It serves in and develops the social interaction between the street residents.

6 CONCLUSION

Cities and communities around the world are facing intractable challenges. The need to reduce humanity's ecological footprint to a sustainable level is now a must. Cities are now the main growth centres of population, consumption, and resource use, as well as waste. Urban planning is traditionally perceived as a complex and time-consuming process. Unclear plans, possible misunderstandings and decision-making without stakeholder participation may cause complaints and delays even in long-prepared projects. New visual smart city planning solutions for illustrating urban projects are needed. Some places in some cities have become decayed, there's no life. The idea of Portable Streets can be a low-cost urban solution. However, the moment we bring street life, people will want to live there again. That's why the portable streets can be designed. A Portable Street can be easy and quick to be delivered and removed in one day. It can be a smart solution to put a whole street life in any place, it can be an innovative urban solution to transform transport, creating walkable and livable environments with better air quality.

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