Newsletter presenting ongoing research of groups participating into project to be published as a book year 2018 by Springer-Nature. For private circulation only.

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1/3 Year 2017, 15th of March
Presented in this Bulletin

PITTSBURG ~ STUTTGART ~ NAPLES

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Our research project consists of 17 Metropolitan Regions

Institutions: There are 23 different institutions involved.

Milestones:

<table>
<thead>
<tr>
<th>Bulletin</th>
<th>Book</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bulletin 1 (USA and Europe)</strong></td>
<td><strong>Chapters Draft 1</strong></td>
</tr>
<tr>
<td><strong>Bulletin 2 (Africa)</strong></td>
<td><strong>Chapters Final draft</strong></td>
</tr>
<tr>
<td>Abuja, Monrovia, Nairobi, Dakar, Johannesburg, Conakry</td>
<td>1st June, 2017</td>
</tr>
<tr>
<td><strong>Bulletin 3 (Asia)</strong></td>
<td><strong>Manuscript Submission to Publisher</strong></td>
</tr>
<tr>
<td>Hong Kong, Ahmedabad-Gandhinagar, Bangalore, Jaipur, Chandigarh, Delhi, Kozhikode, Surat</td>
<td>1st September, 2017</td>
</tr>
<tr>
<td><strong>Publication of book</strong></td>
<td><strong>April, 2018</strong></td>
</tr>
</tbody>
</table>

Image on the cover by Martti Tulenheimo tells a story from Finland. There, a group of volunteers wanted to activate Finnish street life and food culture. They put up an internet page with sophisticated ICT tools to enable people to create their own restaurants for a day (http://www.restaurantday.org/en/info/about). Anyone could add a restaurant on a map and test an idea to create small income and have fun. The project was also challenging the absurdly tight laws hampering restaurant entrepreneurialism in Finland. During the first five years from May 2011 to May 2016, Restaurant Day was celebrated four times a year by thousands of people at a time. Slowly it became a worldwide do-it-yourself food carnival in all continents. This story is to inspire us to think about all the innovative ways of how also dwellers could be the drivers of Smart Metropolitan Development.
Introduction

The mid to late 20th century rust-belt cities in the United States (US) witnessed a trend of decline in its manufacturing base, compelling them to rethink urban and economic development strategies to compete in the 21st century. Pittsburgh, one such example of a rust-belt city, was once known as the "Steel City" due to its production capacity of raw steel in the world economy. With comparative advantage of natural resources and navigable waterways, the city burgeoned with large-scale steel mills since the 1870s and an economic and population base to support these activities (Detrick, 1999). The geographic shift of manufacturing activities towards lesser developed countries since the late 20th century triggered a process of decline in the old manufacturing cities of the developed world. Pittsburgh lost its position as the Steel City, and witnessed a continuous trend of decline in its manufacturing-based economy and population in the past three decades.

The challenge of economic decline coupled with massive brownfield sites, population loss, property abandonment, poverty and high crime, instigated planners and policy makers to adopt new strategies that could transform Pittsburgh and make it competitive in the "New Economy." Since the 1980s, Pittsburgh was successful in adopting many bold policies and strategies that transformed its local economic base towards advanced service sectors: healthcare, higher education, technology, research and development, banking and finance.

Dating back to the 1980s, Pittsburgh has been adopting various right-sizing strategies to stabilize declining neighborhoods. As a result, the city is able to provide a relatively high quality-of-life to its residents within affordable prices, despite abandonment, blighted areas, crime and poverty (Hollander et. al., 2009). These strategies mostly focused on economic diversification, regeneration of brownfields, urban greening and green infrastructure practices, which form the underlying principles of sustainability in Smart City concepts.

With high concentration of employers in the areas of medical research, such as University of Pittsburgh Medical Center (UPMC); higher education, such as Carnegie Mellon University and University of Pittsburgh; banking and financial sectors, such as Pittsburgh National Bank (PNC); and other Fortune 500 companies; Pittsburgh is becoming more successful in transforming its economy. Recently, Uber chose Pittsburgh as its research center for experimentation with driver-less smart car services.

Pittsburgh Skyline, 2013: Confluence of Allegheny and Monongahela rivers. (source: Dr. Kevin J Patrick)
In this chapter, we aim to explore the challenges, successes, and failures of Smart City strategies in the metropolitan region of Pittsburgh. Smart Cities are increasingly becoming a popular paradigm in urban planning theories and practices with its focus on sustainable urban development, economic growth, environment and social sustainability, and advanced infrastructure capabilities; however it is difficult to distinctly identify common trends in Smart City approach at a global scale (Nam & Pardo, 2011; Kumar & Dahiya, 2017). Many smart city programs boast extensive dependency on advanced Information and Communication Technologies (ICT) (Neirotti et al., 2014), although it is considered only as one aspect of Smart City approach. The strategies to attain smartness in the old industrial regions of the world experienced with decades of decline is significantly different compared to the rapidly industrializing regions of the world, such as China and India.

Our broad goal is to analyze the degree to which Pittsburgh’s economic and urban restructuring reflects the principles of Smart City strategies. We follow the six building blocks of a Smart City System – smart people, economy, mobility, environment, living and governance, outlined by Kumar and Dahiya (2017), as they apply to Pittsburgh. Specifically, our research will explore and analyze Smart City strategies across the above-mentioned six themes in the Pittsburgh metropolitan area, within three distinctly identified regional planning efforts: (1) Planning for economic resiliency, (2) Planning for redevelopment of brownfields, and (3) Planning for urban greening and green infrastructure. In addition, we will explore the principles of smart growth that essentially intersect with the themes of Smart City strategies within these planning efforts.

Study Area and its regional context

The study area delineated for this research includes the Metropolitan Statistical Area (MSA) of Pittsburgh, which comprises of 7 counties – Allegheny, Armstrong, Beaver, Butler, Fayette, Washington and Westmoreland (U.S. Census Bureau, 2013).

The seven county metro region consists of 460 municipalities classified into Cities, Townships and Boroughs (PADCED 2017). The political landscape, thus, represents a fragmented structure of local governance, and exhibit the challenges of implementing urban policies and strategies at a regional scale.

Pittsburgh: Rise and fall of the Steel City

Abundance of natural resources, such as coal, timber, iron, and limestone, and navigable waterways – the Allegheny and Monongahela rivers, helped Pittsburgh emerge as the center of steel industries in the US in between the late 19th - early 20th century. By 1970s, Pittsburgh produced about one-third to half of total steel production in the US (Haller, 2005). With international shift of crude steel production, the US witnessed a sharp decline in steel production. In 1973, during its peak the US produced nearly 137 million metric tons (mmt) of raw steel, which sharply declined to 67.7 mmt in 1982 (Haller, 2005), severely impacting the steel mills of Pittsburgh region. Decline of its steel-based manufacturing base, led to several other consequences, such as decline in number of jobs, loss of population, brownfield sites, vacant and abandoned properties (Perkins, 2007). Since the 1980s, Pittsburgh be-
came an example of a “shrinking city” in the Rust belt region, posing challenges for urban planners, practitioners and policy makers.

In between 1987 to 2004, 5 municipalities in the Pittsburgh metropolitan region including the City of Pittsburgh were listed as distressed communities experiencing severe financial difficulties under Act 47 of 1987, the Municipalities Financial Recovery Act of Pennsylvania; placing them under State assistance for recovery strategies. These municipalities are: City of Aliquippa (Beaver), Borough of Braddock (Allegheny), Borough of Rankin (Allegheny), City of Duquesne (Allegheny), and City of Pittsburgh (Allegheny), arranged in time-series (PADCED, 2017). Since then, several planning initiatives have been undertaken from local to regional level with assistance from the local, state and federal governments for economic and urban restructuring.

Pittsburgh: Rise in the New Economy

The process of economic restructuring was challenging along with the issues of reclaiming, and redeveloping major brownfield sites, where the huge steel mills once stood (Perkins, 2007). Levels of environmental contamination often varied from site to site. While federal level programs provided funding and strategy-framework to cleanup contaminated sites, stigma associated with real or perceived levels of contamination often posed difficulty in successful redevelopment of brownfield sites (Lange, 2004). Nevertheless, many successful examples can be found where new office spaces, research centers, and mixed-used developments were developed over time.

At the turn of the 21st century, Pittsburgh made remarkable progress with its economic and urban restructuring, heavily relying on growth of hospitals and healthcare services, high-technology industries, centers of research and higher education. Interestingly, majority of these sectors are non-profit sectors and are property tax-exempt, contributing to financial challenges for the local governments (Deitrick & Briem, 2007).

Existing Challenges

Many municipalities in the region are still confronted with challenges of:

- Abandoned industrial sites
- Declining and aging population base
- Lack of skills and diversity among population base
- Lack of economic diversity
- Lack of advanced service sector jobs
- Urban dereliction and abandonment

A few municipalities are witnessing economic and population growth with success in attracting Information Communications and Technology (ICT) firms, and other advanced service sector jobs, such as Cranberry, Wexford and others. However, the challenges are to distribute such growth at a regional scale, and to recognize the need for a region-wide planning effort that calls for co-operation and resource-sharing among the fragmented landscape of local governance within the region.
Methodology to Analyze Smart City Strategies
We will analyze the degree of successes, failures and challenges in Pittsburgh’s economic and urban restructuring based on the six themes of Smart City System (Kumar & Dahiya, 2017) - i) smart people, ii) smart economy, iii) smart mobility, iv) smart environment, v) smart living and vi) smart governance. We will also explore the principles of smart growth, outlined by International Economic Development Council (IEDC), to understand to what extent they essentially intersect with the themes of Smart City strategies, based on their relevance to our case study of Pittsburgh.

We will specifically illustrate Pittsburgh’s strategies of Smart City through a number of planning initiatives at a local and regional scale, such as the Bakery Square, Summerset at Frick Park, Southside Works, Keystone Commons, Butler Pullman Site and others, where efforts to plan for economic resiliency, redevelop brownfield sites, and green infrastructure led to creation of a mix-use neighborhoods, green spaces and diverse economic opportunities that overall contributes to improved quality-of-life of the residents.

The key planning areas for study:
1) Planning for Economic Resiliency:
Planning for economic resiliency is emerging as a popular approach partly as a reaction to economic decline, disasters and shocks. The mechanisms of economic resiliency planning can be challenging due to unpredictability of local and regional economy in the globalized era of 21st century, but essentially focuses on capacities of local economy to withstand vulnerabilities and cope with consequences of crises (Hill et. al., 2008). Historically, the Pittsburgh region has experienced cycles of growth and decline spanning for centuries, thus, the need to embrace the concept of resiliency is unequivocally supported by politicians, policy makers and community residents.

The region has already been witnessing a phase of economic restructuring with shift from manufacturing to advanced service based economy since the late 1980s, however the uneven regional pattern of economic and urban restructuring compels us to rethink about their successes from the perspective of economic resiliency. We aim to analyze the extent of success and challenges of this economic transformation and the degree of its economic resiliency to be considered as smart city strategy.

2) Planning for Brownfield Redevelopment:
Successful redevelopment of brownfield sites, which were idled and abandoned with closures of steel mills in the region, is considered one of the key factors of post-industrial economic restructuring in Pittsburgh. Such strategies to transform former industrial sites into viable uses are complex often due to perceived notion of contamination as much as real risks (USEPA, 1997). Nevertheless, the urban benefits of brownfield redevelopment make it an appropriate tool for efficient land management.

While the Pittsburgh region offers opportunities to explore degrees of successes and challenges in many of the successful cases of brownfield redevelopment along the Monongahela and Allegheny riverfronts, where former industrial sites were transformed into research institutes, office spaces, mixed use developments; there are still vast amounts of brownfield sites in the broader region that are in abandoned and derelict state. We intend to explore the effective strategies that could integrate brownfield redevelopment at a regional scale and contribute towards smart city approach.

3) Planning for Urban Greening and Green Infrastructure:
Practice of Green Infrastructure (GI) in old industrial cities is different from traditional GI planning that focuses on preservation of open spaces and natural habitats in the urban peripheries. Randolph (2004) defines GI as “an interconnected network of green space that conserves natural ecosystem values and functions and provides associated benefits to human populations.” While this is a popular approach in GI planning, industrial cities rarely possess open spaces in natural conditions, rather they boast a legacy of abandoned and derelict properties.

In a post-industrial context, urban greening has the potential for returning surplus and derelict lands to productive uses, reduce surplus lands, and stabilize real estate markets (Schwarz, 2011). 12% of all properties in Pittsburgh were vacant in 2000, 36% of which were abandoned or blighted (Schilling & Logan, 2008). In 2011,
there were approximately 27,000 vacant, distressed, or undeveloped properties that cost the city $20 million to maintain. Many municipalities in the Pittsburgh metropolitan regions are increasingly mobilizing their citizens and local organizations, and becoming more proactive in re-using abandoned properties and transforming them into green spaces and/or integrating them in a network of GL. Community gardens, landscaped spaces and other strategies are practiced at the local levels to enhance quality of life and foster socio-economic and environmental sustainability, which are integral part of smart city approach. We will investigate the effectiveness of GI strategies focusing on regeneration of vacant properties as parks, restored habitats, vegetation, or for storm water management.

We will discuss the legal, policy and physical challenges in community planning strategies in each of our three planning areas. Our team would welcome any comment or suggestion from our reviewers and colleagues.

References


Abstract

Resource efficiency is an important topic in Western Europe. Reasons for this development can be found in the wealth of the population and the prognosis of limited resources on the world. Based on that, the government in Baden-Wuerttemberg is highly interested to support long-term development.

Smart development for industrial estates is focusing on manufacturing companies. The bulletin will present an insight about the method to be developed during the research. The method shall support local responsible parties in their effort to create synergy and symbiosis.

The idea of the research is the creation of collaboration over boarders of companies. The goal is the collaborative use of existing resources and energy. The creation of these relationships is very difficult because it requires a change in mind of the stakeholders. The individual profit needs to be reduced in priority to support an increased overall benefit for all. This will result in reduced income, at least in the beginning. Therefore, the creation needs to support by an advanced approach showing potential benefits in the long run.

Introduction

Production in urban systems is less supported by the surrounding communities. Reasons are the prejudices about manufacturing incorporating emissions of gas, noise, toxic substances, increase of traffic and the miss looking shape of buildings. Regardless the negative views of the neighbours, the public administration is interested in in locating companies within the city.
districts, as the taxes are the governmental income for providing public services.

To combine these contrasts a new way of development of industrial estates is needed to create more benefit without increasing the negative influences [1]. The HoliPort (holistic development of productive collaboration in industrial estates – in German: Holistischer Ansatz zur Entwicklung von Produktionsstandorten) approach shall support a smart development by optimization of symbiosis between companies in an industrial estate. The establishment of a smart development approach increase the necessity to integrate all relevant stakeholders and parties. For a holistic design a long-term thinking and a common understanding of all is required. Only the commitment of a collaboration of all parties will allow a robust design of dependencies.

Approach for smart development strategies

Based on the variety of parties connected to the complex system a sequential method is postulated to be the right approach. It will be useful for all to have a common knowledge of the potential strategy, the expected benefits and advantages for the stakeholders. Different parties with different background and insights will work together more intensively because of better understanding of each other. A framework to describe a company was developed in an early stage (Figure 1, earlier page). This framework will be the base for the further evaluation and development procedures which will be created with in the project.

Taking a look on the life cycle of an industrial estate, Romeo et. al. [2] discussing five stages for an industrial estate (Figure 2) due to development. Based on the research target the stage two (development) and three (set-up) will be in the focus. Regarding these stages a development approach will have a biggest impact because the controlling elements are more concrete. In these steps there are companies in transformation. They are enlarging, changing their business model or looking for a new site. Therefore, there is a location decision part of this process. Based analysis of location setting steps (Figure 3) made by Reuter and Plote [3] the location is already evaluated by the company. For a real symbiosis both parties, companies and estate, need to find an optimized match. The matching shall support the collaboration between the parties and even parts of a circular economy can be established in late stage. This means that all stakeholders in the scope will profit from others (Figure 4, next page).

The sequential approach will have three stages with different complexity. All stages will be constructed to be based on each other with increasing complexity. The first stage is a simple matching of companies and the industrial estate. In the analysis the estate will be evaluated about the current state in different areas. The result can be used as matching base with po-
tential companies. The companies are categorized. The categories can be used to find the optimal combination of companies and the existing industrial estate. The working method is based on a similarity matrix between companies and the company and the industrial estate.

In the second stage a management model will be used as base. The Congruence Model (Figure 5) developed by Nadler and Tushman [4] will be adapted to the companies and the industrial estate with respect of resource efficiency. The idea is to see the industrial estate as framework for company establishment. The companies’ congruence model shall fit into the framework congruence model of the industrial estate. All optimization will be done under use of the congruence models.

By using the method of system dynamic it is possible to create a simulation model. This third stage is the most difficile one. The model...
creation is a very complex procedure because the analysis scope needs to be defined very accurately (Figure 6). The scope need to be kept as small as possible. This is necessary to keep the system dynamic model as simple as possible to find failure and to adjust the dependencies. All relevant variable need to be identified and the modelling of the connection require different expertise [5], like Vester one of the leading system dynamic experts identified. It is planned to develop a base model which can be easily expanded and adapted to the current situation.

In the further steps of the project an evaluation model for all three stages will be developed. These methods shall be a tool for different stakeholders. The tools shall help these stakeholders to perform a smart transformation. The evaluation method shall show the results of different combinations. The created scenarios will support decision maker with their discussions.

The discussion will be expanded under respect of supply chain and smart logistics as part of the regional development. In the discussion changes caused by the digital transformation will be discussed. During the research first approaches shall be created based on the results of smart development of industrial estates.

References


Introduction

As humans, we have developed our sensorial and cognitive skills through evolution of hundreds of thousands of years, mostly surrounded by natural environment. Evolutionary psychology claims that our modern cities and buildings often forget these origins by generating spaces of alarming levels of stress [1, 2, 3, 4]. Not only Biourbanism enquires how we should be able to renovate our cities, but also how human well-being should be nourished as a psycho-physio-social whole [5, 6]. Embedded to this question lies also the aim of reconnecting us with nature in a sustainable way, whilst also embracing both our contemporary society and technological development.

The aim of our research is to bring together a set of strategies that use specific tools endorsed by recent smart city developments. Our aim is to adapt and use these strategies rather differently, so that actually we should be able to direct our cities towards human-oriented social and built environments. The strategies should be equally economical and spatial. Our main focus is to challenge the capitalistic model of the society via alternative economies. We will also challenge the current top-down model of producing spaces by enabling dwellers and self-organising communities to create cities for the people again.

Biourbanism now proposes strategies, such as urban acupuncture [7, 8] or peer-to-peer (P2P) urbanism [9, 10]. Urban acupuncture finds specific elements of action in a city; these elements can launch healing and energising processes which may essentially be spread inside the urban fabric. These operations can activate or renovate factual urban spaces. P2P urbanism is more about building networks and enabling bottom-up development in the cities. These networks are often used for sharing resources or for making improvements to individual everyday lives with the help of peers. By networking with other peers, proposed small actions can be slowly transformed into city scale phenomena. Biourbanism strategies are mainly considering a city as a complex living organism which cannot be strictly planned. Instead it can be rather guided and directed. New possible routes to development may be opened; new actors may be supported to act. In our research, we will be using Biourbanism strategies to understand and evaluate smart city developments. We are able to provide some empirical case studies in which we are currently testing our principles and concepts.
Our intention is to introduce our research strategy below and also explain briefly the structure of our chapter in progress for the book Smart Metropolitan Regional Development - Economic and Spatial Design. We are currently mapping the current state of smart city development through literature review and relevant case studies. Since several years we have been collecting research materials through ethnographic methods used in our case studies (still in progress).

Keywords: Biourbanism; Shared Knowledge; Spatial Strategies; Alternative Economies.

First part: State of the art of a smart city

In this part we shall analyse the existing set of circumstances and we shall enable academic discussion by highlighting real life examples which can describe better our analysis. We shall include either cases which may lead towards directions that we wish to avoid or cases which include promises for a better future. For example, it is alarming how communication via internet makes us meet people less. Therefore we have shorter target-oriented discussions, thus, there is a danger of becoming incoherent. In other cases, the same methods of communication can be used to help people come together swiftly into factual face-to-face meetings and exchange refined and implicit knowledge by creating experiences of belonging. It is all about how we use these smart tools and what values may emerge from these special uses of technology.

We shall draw attention to how dominant ideas for a smart city are still strongly aiding similarly technological and economic capitalist growth and how this may lead to situations where human or natural development gets even unconsciously overridden. We shall change our position from the concept of economic growth to the transition towards sustainability [11]. Human well-being is indispensable in order to achieve sustainable economic development. Thus, we shall investigate on concepts of growth and shall focus on the relationship of knowledge and technology, as well as the relationship between technology and labour.

Focusing on knowledge is consistent with the definition of Smart City adopted in previous books of the same series. In the book Geographic Information System for Smart Cities [12], some authors defined a smart city as a "knowledge based city that develops extraordinary capabilities to be self-aware, how it functions 24 hours and 7 days a week and communicates, selectively, in real time, knowledge to citizen end users for satisfactory way of life with easy public delivery of services, comfortable mobility, conserving energy, environment and other natural resources, and creating energetic face-to-face communities and a vibrant urban economy, even at a time there is National economic downturn".

Second part: Epistemology for a soft paradigm

In the definition of Smart City above, we can feel how computed data can be emphasised. Ideas such as open data already lean towards unleashing human development. However we wish to enquire further. In order to improve this, we shall focus on knowledge and softer practice-oriented forms of it. Whilst promoting quality of life as basis for sustainable development we understand that people themselves are the key. People own the sources of knowledge for each individual situation. They know how to improve it, as they are already doing so in many aspects of life. So, we need to find strategies to support them, such as checking building capacities, organising skills' transfer and facilitating shared knowledge generation. In these strategies the development will be spatially split into small units and, thus, it will become visible inside a new regional or-
organisation, such as that of new networks and regeneration processes related to these abandoned spaces in the region.

We shall develop our soft paradigm further by learning from our own case studies. At the moment we have three different main case studies:

The first one relates to a emergent phenomenon of a new framework of bottom-up initiatives based on social innovation [13], mutual assistance (peer-to-peer), and elements of sharing economy [14, 15] in Italy. The main aim of these initiatives is to improve the circumstances of the related neighbourhoods, towns and cities. Actors of these initiatives are skilled young adults, frequently unemployed. They come together as groups that rely first of all on the capability of their members to build social capital, using it in a creative way; this is usually the beginning of a systemic process which improves their circumstances socially, environmentally, and economically. Also the process itself creates values for the members who are involved in such initiatives [16]. Mainly they find new solutions to "old" social issues within local contexts. In many cases they start to re-organise these services that their municipalities cannot manage properly due to economic problems. For instance, they can organise the waste management, renovate a public space, create informal social security networks, city branding, culture-oriented events or share local knowledge during open workshops [17]. In the past, these initiatives were organised separately in different cities, whereas today their interaction is a new phenomenon which is largely supported by the use of ICT.

Our second case study refers to Mushrooming [18], a network of co-working places in Finland. More and more people are becoming self-entrepreneurs. They often collect their livelihoods from different projects, scattered into several cities. Everyday working life becomes fragmented. As a response to this, some people form a group around them, rent a space and start creating their own social and spatial anchor-point of work. Mushrooming supports self-organised co-working spaces in order to remain functional. People come to these communities often during hard times, such as when they change a profession or test new ideas or join a new culture. Through Mushrooming co-working collectives can find new members, whereas individual workers can find spaces and communities suitable for them. In our case, this almost seven years old network has brought together new exiting combinations of professions, resulting into collaboration and new jobs. To keep the expenses of workplace low, collectives tend to take into use spaces in need of renovation. This is becoming visible, when neighbourhoods become active.

Our third case study is about building and transferring skills and it takes place in Derby, United Kingdom. Dr. Eleni Tracada is currently participating in an action partnership group formed by members of Derby City Council, Derby Homes Association who develop social housing by purchasing derelict private properties to be renovated; Social Workers, Police and Health Services are now cooperating as well. The group has now approached vulnerable youths in order to bring them together with...
students pursuing studies in architecture at the University of Derby. An educational and cultural centre is being created in order to facilitate meetings, training and research; uneducated youths shall be able to build skills to get to employment or they may choose to pursue further specialist studies. The main aim is to create livable urban neighbourhoods by guaranteeing ongoing and sustainable local economic growth. This project will be developed to become a pilot scheme of smart economy from bottom to top in the so-called forgotten neighbourhoods where quality of life is low and youth criminality is in sharp increase.

Third part: Framework for strategic design
We shall choose some Biourbanism strategies to elaborate further a framework of strategic design. We shall compare these strategies to the existing strategic design of Naples. This will happen by focusing on indicators evaluating strategies and plans. These indicators will tell us about the underlying values and ethical positions. It is crucial to understand, how these indicators inform the decision making in urban policies. For example, if we invest in new schools, and only the number of schools is measured, we aim to create as many schools as possible. If in the political system the indicator of knowledge generation is stressed instead, we might build fewer schools, but with broader programmes of afternoon and evening classes, mixing primary school and occupational studies and inventing collaboration with third sector actors. Guided by a different approach to the selection of indicators, the same resources can be used with very different outcomes. Tentatively we can already claim that publicly discussed values should overcome the pure quantitative indicators in order to promote increased human development and also set lots of unused human capacities free.

The Metropolitan Area of Naples
The Metropolitan Area of Naples in Campania Region, Italy, offers us a specific context to test Biourbanism strategies. The area is particularly complex, varied and marked by multiple high-density zones in contrast to low density and with prevailing agricultural and natural landscapes outside the urban areas. It holds a lot of human and natural potential, which is not fully supported or which is getting destroyed in unplanned negative chain reactions of complexity. It is formed by 92 municipalities, 12 of which count more than 50,000 inhabitants. It shows relevant phenomena of increased population pressure within limited territorial areas, seen as economic, social and environmental challenges.

This metropolitan area is attractive to tourism. It includes two of the three UNESCO World Heritage declared sites, which are included in the World Heritage List for outstanding universal cultural and natural values: the historic centre of Naples, the archaeological sites of Pompei, Herculaneum, and Torre Annunziata. Each one of the 92 municipalities consists of one historic centre of cultural relevance, where the form of human settlements identifies a broad and continuous cultural landscape with archaeological sites, significant monumental attractions and religious sanctuaries and churches.
The area also fosters entrepreneurship. Its strategic location in the Mediterranean region makes it an important infrastructure node for maritime and terrestrial interchanges. The Naples Port area is the main economic device of the province. Besides tourism, agriculture with the accent on fruits, crafts such as clothing, shoes and food as well as industries of means of transport are central. Despite all this economic activity, the minimum salary in the Metropolitan Area is 20% lower than Italian average and 25% of the people remain unemployed. Poor neighbourhoods have the characteristics of slums and organised crime is running its own informal regime.

In the outskirts of urban and historical centres, intensive farming, abandoned industrial land and urban sprawl have compromised the potential environmental quality of the landscape. The Metropolitan Area of Naples is characterised by dynamic anthropogenic processes, which are complex and conflicting, full of potentials and also of many critical issues. The discriminatory management of urban areas has led to a series of negative impacts which affected the physical-spatial quality and the health of the inhabitants. The great danger of contaminated sites has resulted in a significant ecological and social damage, in particular in "the Vesuvian Coast Areas" (11 municipalities) and in the "Land of Fires" (32 municipalities).

The description of Naples area above identifies some relevant issues describing environmental, social and economic circumstances. A set of data and indicators has been used there. However the same dynamics can be analysed by considering alternative components which are not only able to describe the potentials, but also the critical aspects by exploring new types of data and indicators, consistent with the Biurbanism approach.

**Conclusion**

In our conclusion we shall return back to the Metropolitan area of Naples and shall discuss the framework of smart cities in general. We shall look again at what we can offer to our shared discussion in relation to specific spatial and economic design strategies and our main themes.

**References**


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NAPLES - ITALY

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Graduated from the Faculty of Architecture in Naples, Antonio has been awarded a PhD in Sustainability and Urban Environment from Roma Tre University. He had previously taught Architectural Technology and Land and City Analysis at Faculty of Architecture, University of Rome La Sapienza and Sustainable Urban Design at Master course in Sustainable Interactive Design and Multimedia at Roma Tre University. His latest research is mainly oriented to the emergent field of Biourbanism and to the application of complexity theory, evolutionary biology, Biophilia and Morphogenesis to define procedures, processes and tools for a human-oriented architecture and urbanism.
Dr. Eleni Tracada is Principal Tutor in the Built Environment (Architecture) at the University of Derby, UK; Chartered Member RIBA Part III; Senior Fellow of HEA. Dr. Tracada graduated in architecture, Faculty of Architecture of Florence, Italy (1980) and worked as a self-employed architect in Florence (1983-1993). She was awarded a MA in Interior Design at Manchester Metropolitan University (1996) and a PhD by Published Works at the University of Derby (2015). She taught Interior Design at Leeds College of Art & Design, Leeds (2001-2007). She is a member of the Scientific Committee of the International Society of Biourbanism; Editor in Chief of the Journal of Biourbanism (2011-2014). She participated in international research projects, such as BEST Leonardo Lifelong learning (2011-2013), Wor(l)ds which Exclude-WE (2013-2014), Dance Architecture Spatiality (2012-2014). Her key research interests are: architecture, human behaviours in urban spaces, architectural psychology and placemaking, ageing and vulnerable communities' needs in accommodation and urban design, and smart future cities. Dr. Tracada's work disseminate ideas and recommendations on planning frameworks and social policies.

Elina Alatalo graduated as an architect in the year 2009 by reacting to a blocked design task with a theoretical re-interpretation resulting into a book “Open Source Architecture – Johannesburg, South Africa.” This led to working and experimenting around the question of how to develop cities with bottom-up open processes. She is one of the initiators and facilitators of Finnish co-working network Mushrooming (www.mushrooming.fi), which has enabled both novel economical and spatial development in the cities. Mushrooming has taught the importance of real face-to-face encounters and local informal interaction beside smart technologies. Elina is currently working on her PhD as part of a larger research consortium Dwellers in Agile Cities (www.agilecities.fi), in Environmental Policy of Tampere University, funded by Academy of Finland Strategic Research Council. Consortium sees that motivations, knowledge and activities of dwellers are central in co-creating diverse and sustainable cities. Elina is one of the editors of Versus – a forum of happenings and web publication aiming to sustain academic societal responsibility and discussions also in Finnish.
Giuliano Poli graduated in Architecture from the University of Naples Federico II in the 2012, and currently is a PhD Candidate in "Urban Planning and Evaluation." Actually, he is involved as student co-operator in Spatial Analysis module in EU project Horizon 2020 “REsource Management in Peri-urban Areas: Going Beyond Urban Metabolism” (REPAiR). He has also authored several paper deals with a multi-dimensional vision of the Landscape and its benefits and services, with specific focus on spatial analysis and multi-criteria techniques improving decision-making processes for urban design and spatial planning.

Guglielmo Minervino
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Maria Cerreta graduated in Architecture from the University of Naples Federico II. She has a PhD in "Evaluation Methods for the Integrated Conservation of Architecture, Urban and Environmental Heritage." Maria is Director of the Advanced Course in "Real Estate Market and Urban Regeneration," Coordinator of the Second Level Master in "Planning and Sustainable Design of the Port Areas", and member of the PhD Program in Architecture, DiARC, University of Naples "Federico II." She has been senior researcher and coordinator of research projects and is actually involved in EU project Horizon 2020 “REsource Management in Peri-urban Areas: Going Beyond Urban Metabolism” (REPAiR). She has authored several papers and has been the editor of a book with Springer. Her research work is mainly oriented to hybrid assessment of sustainability issues, Multi-Criteria Analysis and Multi-Group Analysis in collaborative and interactive decision-making processes for urban design and spatial planning.

Roberta Mele graduated in Architecture from the University of Naples Federico II in 2011. Roberta Mele is a PhD Candidate in "Landscape and Environment". She has authored numerous national and international scientific publications. Her previous research concerned a Spatio-temporal hotspots analysis for exploring the evolution of particular spatial phenomena, while her current research work focuses on Multi-Criteria Analysis in collaborative decision-making processes for multi-functional Landscape assessment.