Proceedings Series 19.1

The City and Complexity

Life, Design and Commerce in the Built Environment

Amps

AMPS PROCEEDINGS SERIES 19.1

City, University of London | AMPS
London: 17-19 June, 2020

The City and Complexity – Life, Design and Commerce in the Built Environment

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Amps

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AMPS PROCEEDINGS SERIES 19.1 ISSN 2398-9467

INTRODUCTION

The City and Complexity – Life, Design and Commerce in the Built Environment

2020 marked the 50th anniversary of Jane Jacobs' The Economy of Cities. It came a decade after her seminal work, The Death and Life of Great American Cities, and heralded a new age in thinking about the city. The city would no longer be a question of design and planning in isolation. From the early 1970s onwards, it would be seen as a complex interdisciplinary phenomenon.

The first years of the 1970s saw the introduction of a whole series of notions that would mutually inform our reading of the metropolis: social justice and the city, sustainability, defensible space, and urban centres as sites of public health. It saw the emergence of concepts such as the global city, urban economics, the post-industrial society and the cultural city. From art, design and cultural perspectives, post-modernism would critique of the whole modernist project.

Five decades after complexity theory was first applied to our reading of the city, this conference and its publications revisit its consequences. They reconsider the city as an adaptive, self-organising and unpredictable system of interconnecting interventions, forces and perspectives. They ask how these competing and mutually reinforcing factors came into play and how they operate today. They question how the city has been, and continues to be, informed by the practices of multiple disciplines.

Both the conference and this publication brought together a diverse set of theorists and practitioners to examine these questions from a range of discipline perspectives including urban design, architecture, sustainability, housing, public health and sociology. The result is a complex and fascinating journey through 'the city' defined as a complex, integrated phenomenon, both physical in its form and social and environmental in its impacts.

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ACTIVATING REGENERATION: NEGOTIATING INTERSECTING DISCIPLINES AND BUSINESS MODELS TO CREATE NEW URBAN FORMS

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INTRODUCTION

While relevant to all cities, urban sprawl is an issue particularly relevant to "land rich" countries, such as Australia and America, where urban boundaries can continue to push into the rural hinterland. The elasticity of urban boundaries, particularly in Australia, can be put down to a number of factors, including the cultural norm of large subdivisions, low-density living, a seemingly endless supply of land, established business models of greenfield (peri-urban) development and the political responses to this localized residential development norm, where planning ministers are effectively forced to open up more land to an ever growing population. Evidence of the economic and ecological benefits of agglomeration[1] has made significant headway to altering this norm and brought the compact cities agenda[2] to the fore of all major metropolitan strategies, resulting in all planning authorities now having significant residential infill rates[3] , defining the proportion of new dwellings that should occur on previously developed land. Though these policies are having some effect, urban sprawl continues, with 49% of new dwellings in Melbourne being greenfield developments on the urban periphery. The critical issues in this inability to reduce sprawl are all related to the aforementioned factors, but chiefly relate to the norm of low-density living, where subdivisions of 600-1000m^2 were the general practice in the new suburbs of 1950's Australia. Though this has shrunk to a national average of 420m^2 for new subdivisions, most older landholdings (roughly 80% of suburban land nationally) remain in the approximately 800m^2 category. This presents both an issue and an opportunity.

As an issue, the large subdivision patterns show an ongoing cultural association with low-density living, which is illustrated by the number of formal complaints to low-scale development in the established suburbs (approximately 90% of all complaints)[4] . However, it also represents an opportunity where, if these large land parcels could be amalgamated, their scale would allow for significant increase in housing supply and a reduction of the need for sprawl. But to achieve this we would need agreement amongst landowners, a new system of land-use regulation to allow greater densities (capitalizing on lot-assembly), a way to mitigate community concern and the establishment of a new business model or developers, who, to date, see lot-amalgamation in the middle suburbs as far too complex and risky.

This is the complexity that this paper will explore, illustrating how to navigate the various institutions involved in city-building to establish a new mode of development, moving from concept to implementation in an urban built environment.

Greyfields

The concept of urban greyfields was established locally by Newton[5] as middle suburbs of cities, where the housing stock is ageing, becoming obsolescent and being replaced by new stock. It is distinct from the American concept in that it focuses on individually owned land parcels that are currently occupied, as opposed to abandoned shopping areas[6] . Research on the ratio of dwelling value to land value showed that roughly 70% of all residential land in Melbourne was undercapitalized, and therefore potentially open for redevelopment, due to the higher of value of the land and low value of the dwelling. Early research developed a number of tools for identifying the location of potential amalgamated-lot redevelopment precincts, based on a multi-criteria analysis[7] , and for the assessment of these precincts, based on the utilization of various design typologies and a range of open-space scenarios[8] . Figure 1 illustrates the outcomes from the precinct identification software, which also highlights the pervasiveness of these undercapitalized landholdings.

Figure 1: Highlighted land parcels have 70% of value in the land and are prone to redevelopment. Left shows a municipality, right is a zoom-in to roughly 200 land parcels showing the majority undercapitalized.

Additional work then began to explore the potential outcomes that could be achieved with lot-amalgamation and development occurring at a precinct, over that of a single-lot, scale, providing options for additional open-space, higher densities, community co-benefit[9] and greater profits for land-owners due to the higher rates of development that could be achieved over the combined lots[10] . Despite the significant body of work, and ongoing backing by state and municipal authorities, it became evident that without a worked example, to prove the business model (how it would work in the real world) and to establish the business case (that it would work and provide the expected outcomes), the concepts of lot-assembly and precinct-scale development would not occur outside of its largely theoretical framing[11]. Advice from funding organizations and partner planning authorities suggested that for the project to become active and accepted by industry and governance, it first had to be established as viable to all stakeholders, including state government, local government, developers, community members and, most significantly, landowners. The next section will explore the methodology that was undertaken to achieve this.

METHOD

The complexity of urban governance, in that all aspects of governance are divided across multiple stakeholder institutions, combined with the inertia of both law and business practices, effectively means that any significant change to business-as-usual necessitates engagement across multiple disciplines. By way of example, a sectoral change on housing affordability would require simultaneous discussions across strategic planning actors, statutory planning actors, funding organizations, the development industry, social housing organizations and social housing tenants. It would furthermore need the political support of mayors and ministers and as such would need discussion with the wider community within which the social housing would be placed. Given that the aim of our project was to implement a novel model of housing supply change, it likewise demanded cross sectoral discussion and ultimately agreement on the model ways forward.

Abstractly, the methodology employed a three-tier engagement process hereafter referred to as the macro, meso and micro tiers. The highest tier (macro) was established to identify the appropriate stakeholder who would then identify the precursor objects and tools necessary for the system's adoption; on the assumption that tacit expert knowledge of each field/institution would outweigh academic knowledge brought to the project by researchers. The second tier (meso) involved creating the precursor objects and tools using experts within the institutional stakeholder groups. These would then be assessed and iterated with associate institutions until agreement on the form of the object/tool was established. The final tier (micro) was at the level of one-on-one engagement with landowners and community members, which is far more aligned to the typical community engagement processes[12] . Unlike the criticisms of many community engagement practices, where engagement is seen as a community pacification device[13,14] , due to the absolute necessity of land-owner involvement in the process, this tier was ultimately far more important than those above it, but yet would not function post-engagement without the other tiers to established the governance and business case for its advancement. As such is speaks equally to adaptation models[15] as it does engagement practices.

PROCESS AND OUTCOMES

A philosophical underpinning for the project was that, as much as possible, the solution should aim to get a win for all parties: landowners should make more money, or obtain some additional form of benefit (downsized new home etc.); developers should profit from the larger development scales, optimization of site and efficiencies of scale; government stakeholders should see some form of policy outcome; and the surrounding community should attain some form of contextually appropriate community co-benefit, such as tree retention, open space, greater walkability, or affordable housing.

Macro-tier engagement

The key objective of the first level of engagement was to determine what needed to be true to implement a system that would promote lot-amalgamation through some form of development concession while simultaneously enforcing community/municipal co-benefit. Key stakeholders were considered to be local government (strategic planning, statutory planning and councilors for political viability), state government (strategic and statutory planning, plus ministerial aides for political viability), a community representative group (representing business, development resistance, environment and real estate), and the development sector (both large and small-scale developers). These groups were iteratively engaged until the following necessities were identified.

- Strategic planning: Incorporation of the project into state and municipal policy so budget could be applied to it.

- Statutory planning: No new zone or overlay will be created until the existing planning scheme is shown to be ineffective. The project must use one of the exiting tools to implement the scheme. These can be amended at the behest of the responsible local council.
- Political stakeholders: The minister for planning will not publicly endorse the project until it achieves deliverable outcomes using typical planning process. Councilors need to be shown that the project has public support locally and can help deliver municipal policies.
- Development sector: Financial feasibilities need to be run at all stages of the project to ensure that it will be financially viable for developers. The sector will want certainty of planning outcomes and costs up-front to make their own risk assessment.
- Community sector: The community outcomes will need to be defined by the community and the project will need a very transparent development process, lest it be politically kidnapped by residents.

Meso-tier engagement

The objective of this tier was to construct the objects identified above. To ensure the proper uptake of the lot-assembly and precinct scale development among all parties, all parties were therefore crucial in validating the methodology for each aspect of the project; namely creating the right strategic planning direction, statutory planning tool, community engagement process, political de-risking process, and feasibility assessment.

Strategic planning

On advice from the state planning authority, and in conjunction with the timely redrafting of the Melbourne Strategic Statement, researchers provided the evidence base necessary for inclusion in Plan Melbourne 2017-2050. This resulted in policy 2.2.4 on housing supply, a planning outcome to "Provide support and guidance for greyfield areas to deliver more housing choice and diversity"[16] . Simultaneous work with a partner municipality began reworking the central messages of the project until it aligned with municipal policy; namely to provide a diversity of housing with the retention of the depleting tree canopy. This work, and significant community assessment (covered below) led to the projects inclusion in the Maroondah Housing Strategy[17] . With these two outcomes the project was now part of state and local policy and could therefore utilize municipal and state budget and staffing.

Community engagement

Engagement with the community occurred across several phases. The first phase was in line with planning regulations regarding engagement on changes to policy, which was done with council officers as part of the housing strategy change. This was largely at the "informing" level of engagement[18, 19] where residents were socialized to the process and were invited to comment on it. This served the political de-risking aspect of the process, securing support from councilors. Deeper engagement recruited a Community Advisory Group to assist with various aspects of the project, including; identifying the location of pilot precincts; determining the form of community co-benefit that should be part of each precinct (represented in Figure 2); debating the built form outcomes of the precincts; and determining the communications policies of the project to constituents. These sessions were also run with municipal officers at "whole of government" workshops, to ensure there was a municipal/community overlap to validate the outcomes.

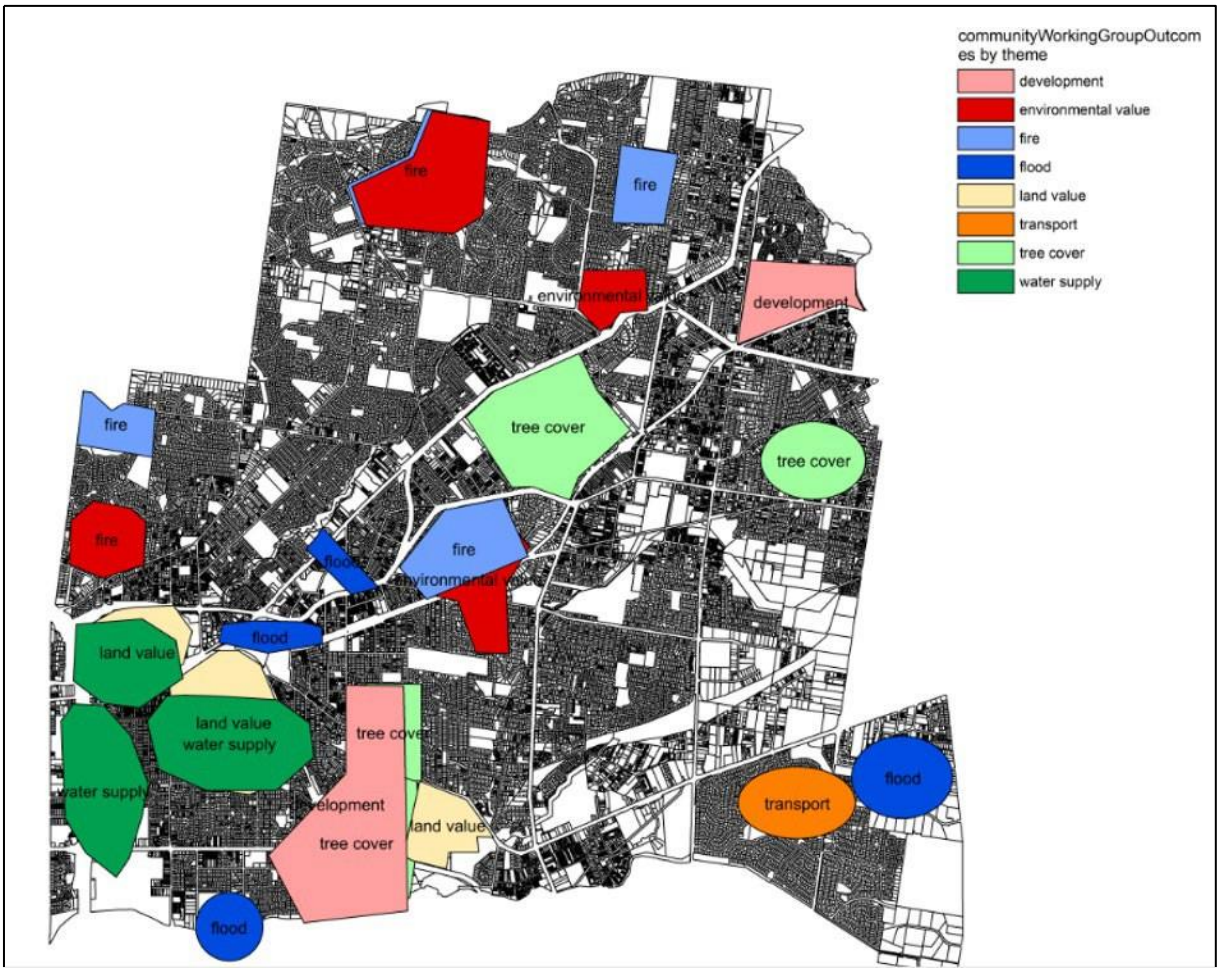

Figure 2: Required localized community co-benefit over a municipality created jointly by community members and municipal staff. Including flood mitigation, bush-fire mitigation, canopy tree protection, walkability and parking issues.

Precinct design, assessment and cost

Precinct design was critical, not just for communications strategies to community, but also to provide a definitive form against which a range of issues could be tested, namely:

- The form of precinct-based community co-benefit (storm-water mitigation, more trees, greater volume of open space, underground parking and greater walkability)
- The performance of housing and open-space designs (CO2, water use, energy efficiency etc.)
- Cost and financial feasibility of new models of housing with advanced design features, built-in community-co-benefit, plus the value up-lift of amalgamated lots at a range of density increases.
- Capacity of new housing types to fit within a range of rezoning scenarios.

To this end, research architects worked iteratively with municipal engineers, statutory planners, quantity surveyors and community engagement officers to produce a set of design typologies over 2, 3 and 4 lots (See Figure 3); typically increasing densities from roughly 12 dwellings per hectare to between 40-100 dwellings per hectare while maintaining 45% of total land for open-space and 25% for deep-root soil.

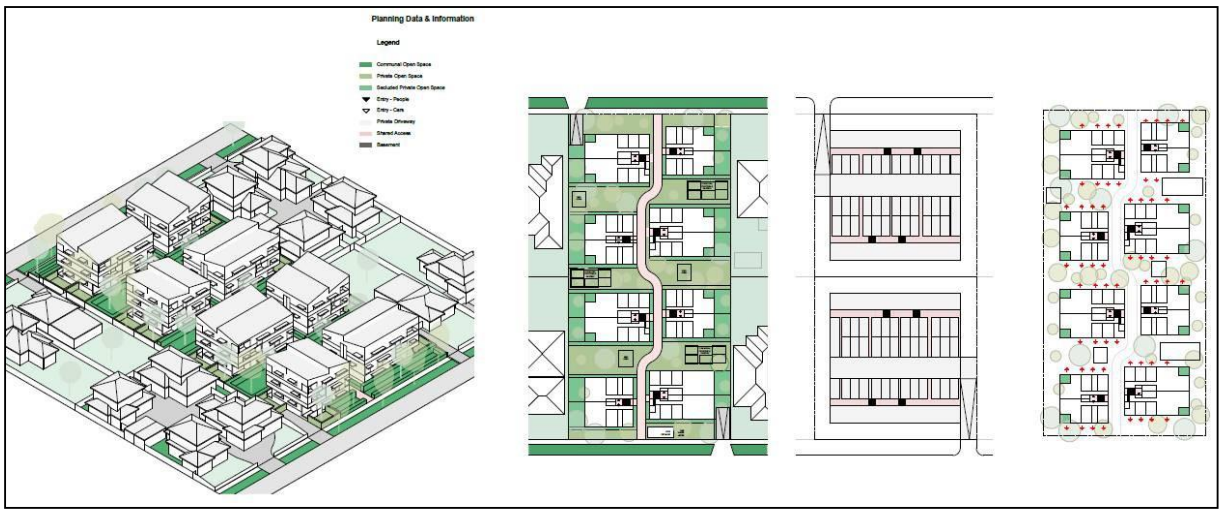

Figure 3: One of the projects housing typologies, illustrating good design, open space, greater walkability, underground parking and deep root areas.

Statutory planning

On advice from the macro-tier engagements, municipal statutory planners and researchers began developing the evidence required for statutory alteration. This was iteratively presented to state planning authorities and refined until it was in a form that would pass their assessment criteria. Outcomes from this work were 2 design overlays, 1 over each precinct, that allowed greater building height if 3+ lots are amalgamated and removing 3rd party complaint rights for lots this size or greater if project-created design guides and housing typologies were respected. These design overlays were accompanied by a developer contribution plan, which required developers to contribute funds per constructed dwelling towards the community co-benefit in each precinct.

Micro tier

This is the level of implementation where, with the full system prepared, the business processes were established and acted on. This is the level most akin to typical community engagement. Central to this tier are the set of playbooks that were developed separately for landowners, developers and municipalities. They illustrate how implement the process for each stakeholder group; they are represented in Figure 4. The depth of engagement in this tier necessitates a separate document, as it drives further into community engagement literature. Suffice for this publication that readers we aware of the establishment of a method to face-to-face landowner communications and landowner sale or development of multiple parcels of land.

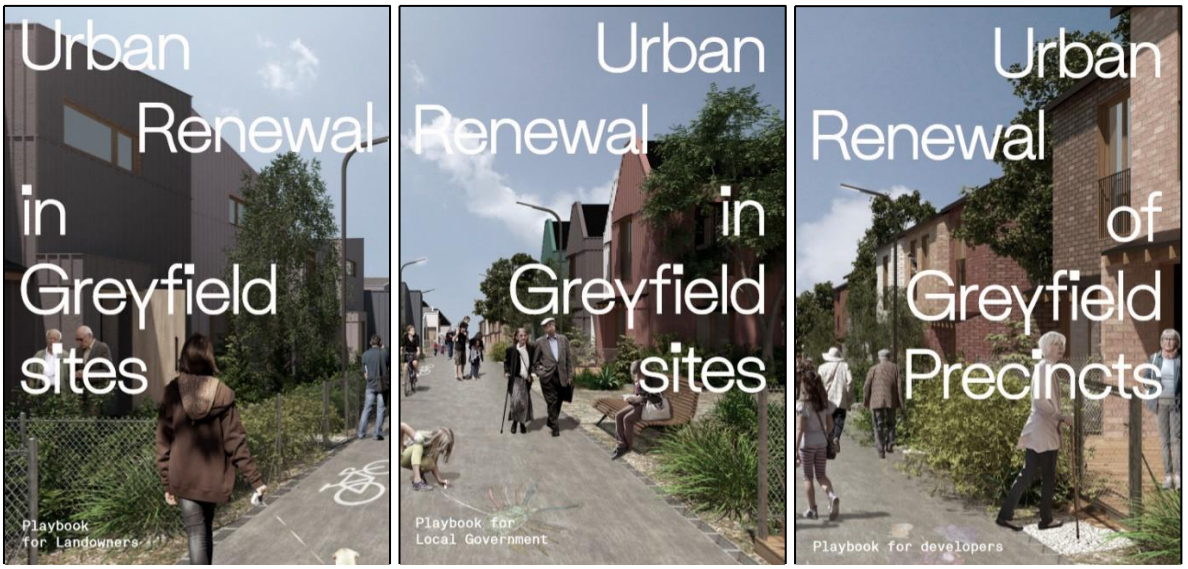

Figure 4: The set of 3 playbooks, outlining the steps to implement greyfield precincts, for landowners, local government and developers

CONCLUSION

The engagement methodology defined above shows how a project can move from academic concept to full implementation, but to do so requires significant exploration of the relevant industry plus representative community and governance groups. While time and resource intensive this method has proven to work across the complexities of urban planning, design, business and law. Furthermore, the methodology is now being reused in a separate project that is aiming to implement semi-autonomous business units in municipal government, which is currently frowned upon by the various Local Government Acts nationally. While this will be yet another long-term engagement over multiple disciplines, we take heart in the knowledge that we now have a formal process that we can use to tackle the complexity of bringing about changes to the urban planning arena.

What the above also illustrates it the potential role of academics as intermediaries in the process of change, where, while all other organisations have a specific mandate and established business models, the chief role of the academic is to innovate. As such they have the capacity, in terms of both work-time and technical capability, to collectively work across disciplines; variously sociology for institutional translation, architecture for design-research, economics for feasibility, planning for governance and law for regime change. This capacity to work across disciplines, using each when necessary, but within the business logic of the institutions where change is sought, is, we see, critical for bringing about change in the overt complexity and interrelatedness of urban systems.

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SEARCH FOR HOUSING BETWEEN CHAOS AND MINIMALISM: LAGOM LIFE

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INTRODUCTION

Human behaviour is changing day by day too as the needs of daily life change. The meaning attributed to the city, the house, the environment and the individual feels the need to renew itself. The act of protecting itself from the environmental conditions, which is the basic need of people, integrates with shelter and privacy and forms the dwelling. In a sense understood today, the first shelter and settlement emerge with the change of the type of nutrition of people. In the process of understanding the dwelling, the user relationship is at the forefront. At this point, the desire of the residence to shift to more integrated meanings with the user, such as "home" is the main problem of today.

İhsan Bilgin states that the apartment which emerged in Turkey between the years 1839-1920, as defined relative modernity. He describes 1920-1946 as radical modernization—neighbourhood scale changes. The plans prepare for motor vehicles. In a sense, the city spine forms itself with highways. The neighbourhood scale comes to the fore with the understanding of mass housing at this point. In the 1945-1980s, a populist approach prevailed. This time migration occurs to the fore. Slum settlements began to appear more frequently as the movement led to a population boom. New apartments are now needed. Since the 80s, Modernization continues to dominate as a crisis. The tip of the scale escapes. The definition of an apartment reproduces itself in every so-called process. Requirements are so-called. These so-called requirements used make society feel that they need what is done. With the so-called presentation of this never-ending old-new apartment and the mass housing, a settlement concept called "residence" type emerges[1]. The apartments, which were quickly introduced in this process, and then the residence type buildings we are accustomed to seeing, moved away from the meaning of "home" and represented transience rather than permanence. Even if it is not necessary to fully root in the discussion of permanence and transience, the potential of these two situations should be considered.

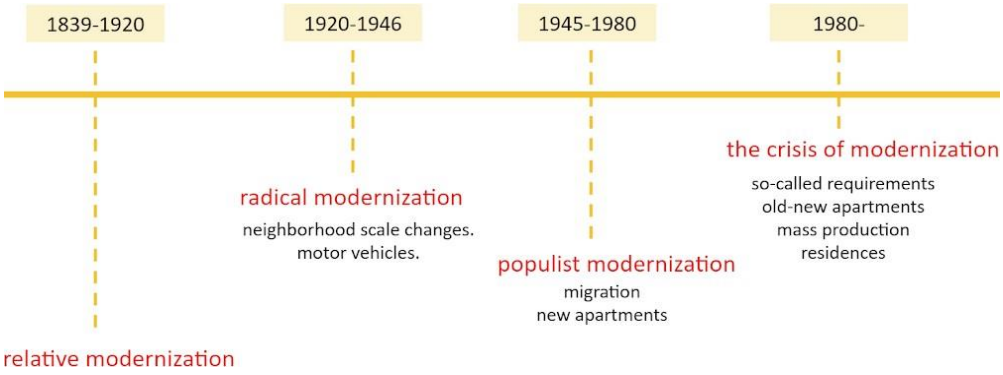

Figure 1. Housing modernization process in Turkey. Adapted from İhsan Bilgin notes.

It could be said that the theme of "perfection" was dominant in architectural productions in Europe, especially in the first half of the 1900s. This theme was defined in a scale where both the structure and the ornaments could show itself. As of the period, this perfection has also evolved into fabrication to meet urgent needs, including a fast production philosophy. In America and Europe, the meaning of housing has been dragged towards a different search with the reasons that are sometimes shared and sometimes reserved[2]. In this case, it's also readable effects on Turkey. While the housing requirements in America were shifting towards suburban life towards production, in Europe, mostly, single-family home approaches were manifested. In particular, the designs of Wright, Mies and Le Corbusier gained a place in this period with housing examples. Pure masses, where the decoration gradually let itself go, were preferred in creating living spaces. The function was essential. Later, with the change of needs, metropolises and daily life purposes, housing began to transform its meaning.

Although such structures seem to respond to the needs instantaneously in their context, psychological and sociological negative examples are observed on the individual when considered for a long time[3]. One of the most important reasons for this is that conditions are forced out of a natural environment by removing the individual from his natural habitat. Since the artificial physical environment cannot adapt to the social context in which it resides, human relations are affected to a similar extent. Although it seems positive in terms of avoiding any new encounter and saving time instantly in environments where everything is done quickly, this situation can cause the individual to be singularized. The collective working style and contact may not take place due to the singularized individual, whether face to face or through a virtual environment. In this context, the problem should be handled in a range extending from how we live in a setting to how we prefer to produce our lives.

A case study was conducted within the scope of this central theme. An existing problem has been evaluated within its borders, and various analysis and evaluation studies have been carried out accordingly[4]. In the study, it was directed to new hypotheses and new propositions through research and inquiries. Beyond the concern of looking for a clear answer, an everyday problem has been addressed in various contexts, and a query pattern has been created accordingly. The study can be considered as a preliminary manifest stage in a sense. It is a statement of opinion defending the change of the current order and that this can happen in a very natural way. At this point, the main code in the study was determined as the reduction/proliferation. The sub-codes of these codes deal with the themes of minimalism, everyday life, urban life, metropolization, lagom life, home, individual, collective consciousness.

CONCEPTUAL BACKGROUND: IS DAILY LIFE ROUTINE SUITABLE ACCORDING TO MINIMIZING?

Which are handled in an extensive framework, the questions of what kind of environment we live and how we prefer to produce our lives are focused primarily on the understanding of minimalism in order to purify the intensity of everyday life to some extent. Minimalism finds its response in the field of architecture and design as “to go to the simplest, most economical and functional result with the least materials”. So the meaning of the purity of minimalism in art transforms itself a little here. Although it is vital that what is formed looks pure, it has a sense that it adds to itself: function[5]. The function is not included in this process in a subsequently fabricated form. Due to the purity of the formation, it is entirely naturally involved in this process.

Today, the minimal approach also manifests itself as a life choice. Although it varies at different scales depending on the situation, it is thought that it is basically far from the logic of minimalism. While the everyday lifestyle makes it necessary to participate in many activities at the same time, the philosophy of minimalism to share something that exists only in its state does not match this daily routine. Many things can symbolize many other situations besides their own. More precisely, it is the fact that any case is an intermediary for expressing another position. In this way, it is moved away from the core logic of minimalism.

It is not always possible to get involved in this normal flow with the idea of only decreasing. Even if this can happen in a specific small area, it is not possible to see this as a whole life and settlement philosophy. Lagom, an alternative lifestyle that emerges from a kind of simplification, has recently started to spread to many different places than the Scandinavian region. This understanding of life, which is not based on proliferation, focuses on objects or situations as much as needed rather than decreasing. In fact, the knowledge of function in minimalism can find itself in lagom in the current sense. Because lagom, which is a purely functional approach, offers a table of requirements for that moment. Lagom is an average life philosophy. This average requires mastering what may be needed depending on the circumstances. It is open to change. The more dull, stationary and constant understanding in minimalism is carried to a much more current, dynamic and variable structure in lagom.

LAGOM LIFE - LAGOM CITY CYCLE

Lagom, in essence, represents a way of life. While this attitude towards simplification is an understanding in Scandinavian Countries, it has started to spread to various parts of the world over time. Similarly, except Sweden, other examples referring to a whole philosophy of life are coming from Norway and Denmark[6].

The word "lagom" means "exactly as it should be" in Swedish[7]. Therefore, instead of treating the subject as just an architectural trend, it would be more appropriate to consider it as a way of life as it is in essence. Although the Lagom approach has become more widespread in terms of decoration and interior design today, this concept has a critical content that can be adapted to an urban lifestyle. With the interpretation of the requirements scale according to different situations, this understanding can be transferred from the interior to urban life.

Here, three architects who are similar in terms of a period can be interpreted in the axis of lagom. These are Mies, Loos and Aalto. In the period supported by Mies's "less is more" and Loos's "ornament is crime" discourse, the combination of structure and decoration started to give way to a little simpler. At the point where it was simplified, minimalism started to show itself actively. The search for a purely function-oriented plastic was continuing. Of course, this understanding was not limited to the architectural structure, as in every period. It was reflected in many disciplines and perspectives.

Especially in the pursuit of increasing the quality of daily life, it manifested itself as a purification from excesses in every sense.
At this point, Aalto's designs and statements can also be examined. Minimalism, focusing on function and searching the simple draw attention here. The critical issue and transformation here are that Mies differs from each other with subtle differences with the concept of simplicity in his architectural understanding. Mies Van Der Rohe's cult expression "less is more" may be suitable for the lagom lifestyle. In addition to this, a completion such as "but few are boring" should be done. The "quantity sufficient" approach is vital at this point. That is what distinguishes lagom from an entirely minimalist and highly purified lifestyle. Lagom philosophy, which will allow minimalism to break away from its purified, reduced purity and stagnation, reach a much more dynamic structure, also reveals its potential at this point.

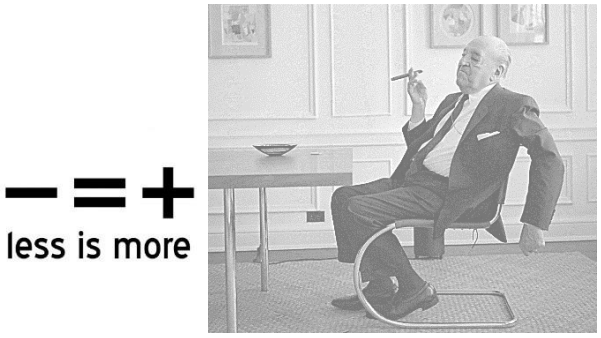

Figure 2. Mies Van der Rohe. (https://awards.re-thinkingthefuture.com/article/life-and-works-of-mies-van-der-rohe/)

Lagom focuses on the understanding that keeps up with its position in a sense, and in doing so, fully emphasizes the individual and nature. Adaptation threshold has critical value in this case. Considering the living conditions of today's people in all its dimensions ultimately - housing, working, socializing, etc. - living a life detached from what is happening will be to isolate itself from further developments. As long as this isolation situation is occasional, it is not a problem. However, the fact that the whole philosophy of life is based on isolation does not seem very realistic in most areas, although not in all areas. As mentioned earlier, the "lagom" settlement situation comes into play at this point, at the correct decision and on time.
The point where the situation is critical and design-specific is that every individual's daily routine and requirement may be different. The lagom philosophy comes into play at this point. This situation varies depending on how the person's requirement pattern is interpreted. This philosophy, which is deemed appropriate to be adopted as a life philosophy, is the discovery that the person questions what he needs at that moment and whether he needs it and how he can evaluate it. Therefore, making a questioning of needs according to the moment can also enable the person to discover himself while creating his life philosophy.

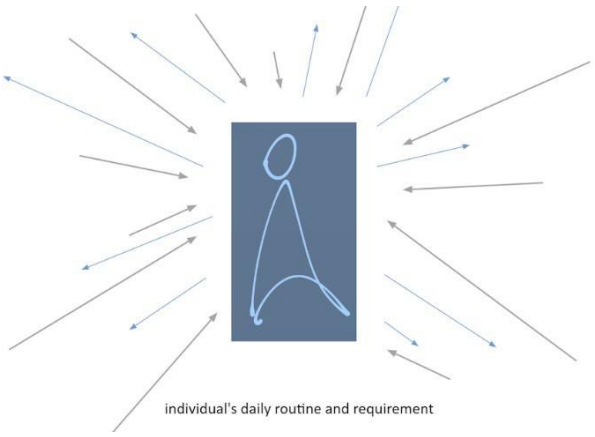

Figure 3. Daily routine and requirements.

Currently, a direct example of a lagom city may not be encountered because lagom has flexibility and originality. This flexibility requires being in a situation that can vary from person to person. This is because the daily life of each individual is different. The aim is that this daily flow can be in its most natural form. While for some people this scale is smaller, for some people it may be between different countries and different cities. Active reflection of Lagom shows itself with the dynamic flow within this network.

The examples that we can see lagom in a particular order in the city may vary. The reason for this is the structure that takes shape according to the requirements. This structure reveals alternative lifestyles[8]. Considering that the only thing that can be brought into focus in lagom utopia is the needs and the individual, it can be said to be function-oriented. If many things are defined according to the environment in which it is located, "function" also needs to be re-defined in this. Whether it is just a goal-oriented function or a function that can address a more holistic situation that extends its scope should be evaluated within the framework of daily definitions.

The person who has gone through this entire evaluation process is continuously asking questions about himself, his environment, and even the objects around him. Although this schizophrenic quest sounds like a vicious circle at some point, it enables the person to make sense of himself. It also causes it to seek an organisation that can appeal to many inherently hidden needs and actions. Therefore, the co-operation of life and “real meaning everyday life” involves the individual into a process that will enable him to discover himself and create an environment for a holistic production.

LAGOM CITY UTOPIA

Well then, if we go back to the beginning, what are the conditions today? As stated in Lagom, the meaning of "as it should be", carries an intrinsically pure investigation of need. It is true that monotype housing settlements, which make all human needs equal and ignore social and cultural differences and psychological factors, do not create a satisfactory environment for the user[9]. People are included in these environments because they often are obliged to it or be forced. Therefore, what is essential is that the individual can draw a frame according to his / her lifestyle, goals, and routines in daily life.

In this sense, it is considered essential to research housing, to see all these routines and to monitor the way of life. It is conducting housing researches, better understanding the needs and demands of different subcultures within the same culture, making improvements based on the idea of the design for everyone in different types of age groups, satisfying people at various stages of urbanization, and thereby providing inner social peace, inside and outside the dwelling. It gains importance as it can address the

issues of giving identity to the environment by increasing diversification[10]. While the housing research within the scope of the study is taken over the settlement, the lagom that comes to the fore is a tool to make understanding, requirements and daily life observations.

There is no doubt that the meaning of the house is transforming in the current period[11].—the sense of the house changes within the framework of ideal housing concepts and social factors [12]. In addition to this, it is influenced in terms of building materials as well as the view of life philosophy, the change of daily routines and the change of social relations. The study of architectural psychology gains importance at this point. The task of this psychology is to determine some spiritual effects that the art of building can access its tools[13]. Therefore, all urbanization takes place in a cycle that affects the existing as well as it is affected by the existing one. The city, which was an individual product at the beginning of the construction process, has become a transformation area with some relations of interest over time. So much so, until now, the need for pure "sheltering", which is seen as the purpose of the dwelling, has moved away from being passively built structure [14]. It actively participates in this construction process, both sociologically and socially, in the sense of a whole urban tectonic. This cycle has a rhythm that can be called routine or usual in itself. This natural flow provides vitality to the city and its inhabitants. However, the destruction of this natural flow at some point will result in chaos for that city and all stakeholders.

It is possible to observe this situation in cities that are gradually taking a step towards metropolization with an increasing population that cannot be prevented. The sense of belonging to the city decreases, the person becomes more and more alienated. Where alienation exists, the nature of participation and collectivity must also be questioned. The visual consumption culture that can only live in the metropolis threatens the autonomy and creativity of individuals [15]. Therefore, the concept of belonging becomes different here, and it moves away from the known sense of ownership and adopts a new place. It is impossible to say that it has completely disappeared and that this type of lifestyle has adverse side effects. It may also have a structure that produces solutions at many points. At this point, the subject that needs to be stopped and evaluated is the concepts such as belonging, freedom, meaning and space, which we adopt and put into a mould—squeezing each one into a definition, just as it stagnates them besides locks our thinking process too. We start not thinking about these types of subjects anymore. For example, this is what happens in the concept of "belonging". For a person to feel belonging to a place, it does not have to have spent many years in that place. This is a situation that can change relatively. At this point, the reliable field of the past should evolve towards a new search for itself, beyond the clarification of a continuous definition, and make some comments about the current situation. For example, the concept of belonging, which we think is alienated, takes on an identity that sometimes feels like it belongs but sometimes wants to get away from it. Sometimes, when this identity is reflected in architecture, it acquires fake jargon[16].

We can think of it as a hollow surface that looks like them but is not. Therefore, when deepening, problems begin to occur. This architecture, which produces a superficial, instant, and relatively solution, affects its perspective in this direction and drags the societies it hosts towards the society of spectacle[17]. This situation, which seems a small detail, is intensely closed-form to criticize. If we come to the concept of "belonging" again, this slippery feeling between fleeing and staying brings with it architectural psychology that needs to be investigated. In addition, there are a few more questions to ask: What kind of life does this feeling want to be involved? What kind of way does he find himself? How can it be handled in the context of architecture?

The question of "what kind of life do you want to be involved in" also drags many components that need to be explored. This life can be handled socially, physically, psychologically. It brings together debates

in many different areas, from the daily routines of the individual to the housing policies, the formation of the city and therefore the way of life.

EVALUATION AND CONCLUSION

One of the best ways to study a city is through the examination of the dwelling; likewise, exploring the city is one of the best ways to study the dwelling[18]. Within the scope of this study, the active components are taken into consideration in the housing. The current age should go beyond traditional approaches and enable a proactive and flexible approach that requires questioning of its alternatives. While flexibility and user-oriented approaches come to the fore, this mustn't be a so-called policy, but rather a design object. Therefore, at this point, it should be able to adapt to the flow in daily life. Although the transition to the "new" area has a flexible nature, resistance is shown during the transition phase. This resistance is considered to be a spiritual resistance. Besides, the people of this period do not provide the harmony required by the age in every sense. To move away from the reliable area of the past and to observe the existing ones both on and off the periphery; it is crucial to be able to experience beyond that. Living compulsory places create their environment instead of mandatory inclusion. In this environment that contains all kinds of actions, the meaning of the housing should be transformed. The home's relaxation environment should expand its activities. This was directly experienced during the pandemic period in which we are. Many situations resisting in daily life have created a new living space within an imperative.

Zahle has identified five subgroups to be considered when planning for the future from today's conditions: Ecology and environment, information and technology, usability, choice of options, flexibility[19]. As can be seen from here, it is noteworthy that one of the main essential components in future planning is on freedom. This freedom can pave the way for structuring in which one can determine his own living space and create his environment. Lagom understanding is a suggestion in this context. It is a way of living that focuses on the needs of the individual and then the society. These needs should be evaluated physiologically, psychologically and sociologically. When we think of life in detail with housing and other actions on its periphery, it brings to mind the question of "is the change of housing can be a new type of utopia for the lagom philosophy". Research should be done within the context of various components on lagom cities, which can be seen as a realistic urban utopia. In essence, this seemingly effortless understanding, the question of how to get involved in a disrupted order is essential. One of the most critical questions that can be asked in this utopia or dystopia according to the situation should be "how much do we want freedom?". It may be necessary to ask whether freedom is something that is made an effort to earn it or something usual as it is. It is hard to say that this approach, trials, search thought is the majority yet. Considering that we need such up-to-date and everyday life-related utopias, it is deemed to be essential to produce interpreted experiments in this context and to continue housing research in this context.

NOTES

[1] İhsan Bilgin, “Modernization,” in Housing *and Settlement in Anatolia a Historical Perspective*, ed. Yıldız Sey and Şebnem Önal (İstanbul: Ege Yayınları, 1999), 247-357.
[2] Daniel Borden, Jerzy Elzanowski, Cornelia Lawrenz, Daniel Miller, Adele Smith and Joni Taylor, ***Başvuru Kitapları:*** *Mimarlık*, (İstanbul: NTV Yayınları), 372-412.
[3] Yurtsever, B. and Polatoğlu, Ç. "Dilemma at Renewed Housing Zones: Bomonti Sample" which is presented at the Conference: Housing – A Critical Perspective, Architecture_MPS; Liverpool University; Liverpool John Moores University; Liverpool: 8-9 April 2015, is an example for this. https://architecturemps.com/wp-content/uploads/2015/10/bengi_yurtsever_dilemma-at-renewed-housing-zones_eng.pdf
Although there are positive / negative developments, it is thought that the situation should be handled on both sides.
[4] Ali Yıldırım and Hasan Şimşek, *Sosyal Bilimlerde Nitel Araştırma Yöntemleri* (Ankara: Seçkin Yayınları, 2008), 277.
[5] Pınar Mine Islakoğlu, “Mimarlıkta Minimalizm,” *Ege Mimarlık* 55(3) (2005): 15.
[6] “Tam Kararında Bir Yaşam Tarzı: Lagom,” Psychologies Türkiye, accessed July 3, 2020, http://www.psychologies.com.tr/tam-kararinda-bir-yasam-tarzi-lagom/
[7] Ester Barinaga, “Swedishness Through Lagom: Can Words Tell Us Anything About a Culture,” *Centre for Advanced Studies in Leadership Research Paper Series 6*, (1999): 1-15.
[8] An example can be given from a youtube channel called "Daire". Lagom is a lifestyle that is integrated with the urban order of a family of 4 but offers an alternative in terms of settlement and is also an inspiration for life. https://www.youtube.com/watch?v=lvPmVAwD4Wk
[9] Rabia Alga, “Yaşam Döngüsüne Bağlı Olarak Konut Tasarımını Etkileyen Faktörler,” İstanbul: ITU FBE Master Thesis (2005), 26.
[10] Şengül Öymen Gür, *Doğu Karadeniz Örneğinde Konut Kültürü*, (İstanbul: YEM Yayınları, 2000)
[11] Aldo Rossi, *Şehrin Mimarisi*, trans. Nurdan Gürbilek (İstanbul: Kanat Yayınları, 2003), 57.
[12] Rabia Alga, *Yaşam Döngüsüne Bağlı Olarak Konut Tasarımını Etkileyen Faktörler* (İstanbul: ITU FBE Master Thesis, 2005), 12.
[13] Heinrich Wölfflin, *Mimarlık Psikolojisine Öndeyişler*, trans. Alp Tümertekin and Nihat Ülner, (İstanbul: Janus Yayınları, 2016), 11.
[14] Hayriyem Zeynep Altan, “Bir Sürgünlük Biçimi: Metropol Yaşamı,” *Istanbul University Faculty of Communication Journal* 34 (2011), 5-22.
[15] Hayriyem Zeynep Altan, “Bir Sürgünlük Biçimi: Metropol Yaşamı,” *Istanbul University Faculty of Communication Journal* 34 (2011), 5-22.
[16] Adorno states that jargon about false lives was produced in his book "The Jargon of Authenticity" and that this jargon defines reality even through a fake language.
[17] Debord states that in his book “The Society of Spectacle” every kind of everyday event turns into a show, and the way to get rid of it is turned into a play.
[18] Aldo Rossi, *Şehrin Mimarisi*, trans. Nurdan Gürbilek (İstanbul: Kanat Yayınları, 2003), 59.
[19] Zahle, “Kullanıcı Gözüyle Konut”, *Diğerlerinin Konut Sorunları* (Ankara: TMMOB Mimarlar Odası Yayını: 1996)

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ARCHITECTURE FOR THE WELLBEING OF HOMELESS YOUTH: RESEARCH BY DESIGN PROJECT, PIONEERING BUSKERS

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INTRODUCTION

Architecture has a role to play in housing provision for homelessness people, and any assistance needs to consider not only their housing but also their well-being. Currently, design practices with architect's involvement have yielded impressive results via community participation, however, few studies have discussed the relationships between community participation, architectural design and well-being of the homeless. This paper focuses on the community and housing design methods of architect-led self-built housing assistance projects. This research examines how modular, incremental and self-build design strategies can be employed by architects in the design of communities for homeless youth to benefit the wellbeing of the residents, by testing these strategies on the design project: 'Pioneering Buskers'[1]. The research analyses design opportunities through learning from the literature and existing case studies.

Research context

Plasdwr is a real new development with 7000 homes on the edge of Cardiff. Inspired by Howard's garden city, the developers aim to create a world-class sustainable community, approved by Welsh Government Planning Inspectorate and began construction in 2017[2].

'Pioneering Buskers' (pre-design phase) [3], my master's project, was inspired by my observations of the talent of homeless buskers in Cardiff city centre. Learning from the literature and case studies, the design was updated and analysed. This research by design project aims to suggest a new possibility of housing opportunities and social activities for homeless people via street talent activities and architect-led self-built communities in the context of new district developments. This provides the potential for homeless youth to be actively involved in shaping the new development of Plasdwr. With consideration of the project 'Pioneering Buskers', the research question for this research is: What kind of community design with modular, self-built and incremental features can benefit the wellbeing and the development of homeless youth?

Needs of homeless youth

Young homeless people between the ages of 16 and 24 are one of the most vulnerable groups and account for nearly half of the homeless population[4]. According to Gaetz[5], the main reasons for this are a) high rates of psychosis; b) drug or alcohol addiction; c) crime; d) lack of education and employment support; e) experiences of physical, sexual or emotional abuse; f) social exclusion.

It is pointed out that housing is essential for assistance to the homeless, but resettlement alone is not enough[6]. Other supports are required such as treatment (physical and psychological), employment support and social network establishment. Support needs to be flexible and personal to prevent re-homelessness and promote further social integration. Research on 'Housing First' projects show that resettling homeless people with respecting their preference for 'home' and providing rehabilitation-oriented medical services will establish stable housing and effectively promote community integration. Research also suggests that social network connections are enhanced while addiction issues are decreased in projects based on the Housing First model [7]. In such projects, the research scopes were expanded from housing to community, and some community-based projects such as the 'Community First! Village' was considered to derive more on neighbourhood[8]. Some scholars put forward that the relief of homeless people should focus on improving their well-being, which can be improved by social participation [9]. In fact, this concept has been used by charities for many years with significant results. Habitat for Humanity has grouped different stakeholders including businesses, local charities, and residents together to build decent, affordable housing[10]. The success of these projects bears out their views. However, most housing priority projects prefer to emphasise resettlement rather than community integration. Therefore, the research scope of this research was focussed on the community aspects.

Design of housing for the homeless

Architectural design should be innovative and practical to meet the needs of homeless people[11]. Current housing assistance can be roughly divided into a, New-constructed housing which includes: 1, general；2, modular；3, self-built；4, Incremental; and b, Renovation. Architect Peter Barber's retroactive housing project (Holmes Road Studios) for the homeless in London has been praised by promoting community engagement via shared gardens [12]. The YMCA projects in London and Seattle have adopted modular designs to provide quality housing for homeless youth at low cost within a short construction period[13]. Self-built housing has been widely used in housing assistance programs for homeless people and has helped many homeless people obtain their homes [14]. In projects of homeless ex-services self-built community in Bristol and Valleys Scheme in Wales, participants have gained good neighbourhood relationships and improved physical and mental health [15]. Wikihouse is a combination of modularity and self-building, with an open-source modular building system that uses laser cutting and human-only assembly[16], which has been applied by some scholars to the research on alleviating housing crisis and homelessness[17]. Incremental housing is considered as an affordable housing solution for vulnerable groups, providing only the primary living spaces at first but also spare space for expansion for residents' development [18]. The concept of incremental housing such as the 'Half-houses' in Zimbabwe is therefore used in tackling the problem of slums and benefiting the cohesion of the community [19].

How can residents reach their wellbeing via participation?

Community participation is influential in the formation of community cohesion. Joint construction process of the community will help promote community integration [20]. In the Valleys scheme, Hutson and Jones point out[21] that through construction, the homeless youth gain confidence, and learning together with peers can help build their social networks. The homeless groups' wellbeing is crucial for their integration and development after their settlement. In this regard, interaction between users' development and the development of a sense of community are the key points [22].

Wellbeing in the community

It is pointed out that homeless people's sense of identities is linked with their wellbeing [23], which is

closely associated with their sense of belonging. Residents' experience in community space helps to build their self-cognition and self-identities in the community environment [24]. 'Home' is a way for people to express their identity and understand themselves; residents form their unique identity by interacting and this mutual connections can create a sense of 'home'[25]. The open space between buildings is the place where residents form the sense of belonging in the community. They experience interactions with their neighbours and further form a sense of belonging in the daily communal activities and overlapping daily tracks of different residents[26]. It is claimed that the residents' opportunity to build space themselves in the community is significantly meaningful for community development and the wellbeing of residents [27]. Their attachment to the community spurs them to participate in building the community, and their participation will facilitate social cohesion of the community in return. Through collective action, conflicts can be minimized and social capital can be accumulated, the sense of identity built[28]. Simplifying these complex relationships reveals that (see Figure 1) in the ideal conditions, motivation, participation, and community development would form a positive cycle, while empowerment and place attachment are drivers for the process.

Young people can benefit from cooperation in the construction of their own home [29]. In the Valleys scheme project, most homeless youths have built excellent relationships with the residents nearby. 'Community architect' shows that the fruitful cooperation between designers and residents can also promote social cohesion [30].

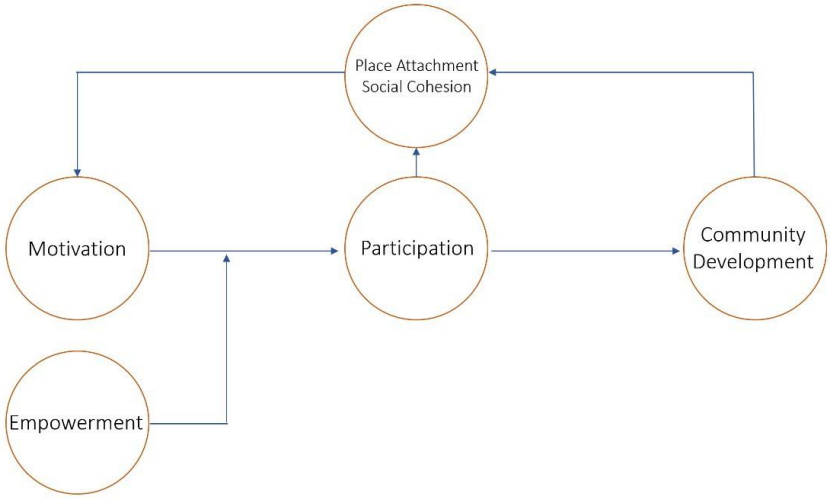

Figure 1 . Simplified relationship between participation, place attachment and community development

METHODOLOGY

The methodology for this research covers:

- A literature review that identified the situation and needs of homeless youth in the UK and some other regions; the latest theories on the homeless assistance and design of homeless housing; analysis of the benefits of participation and communal interaction for place attachment, their required empowerment to the residents and the brought impacts to their wellbeing.
- Since this research is based on the concept of participatory design, inspired by Systems Oriented Design[31], the design is regarded as an activity (the first person perspective). Adopting the method of Action Research[32], three case studies related to the research question were selected to explore the relationship between practice and theory based on the results of observation, and critical reflection is conducted to extract beneficial design strategies which were adapted to local

specificity of the project.

- These strategies found by observation and analysis [33] were applied to the design project 'Pioneer Buskers' (post-design) [34] to innovate [35] and find the most suitable design methods[36]. The relative impacts were analysed for testing those innovative methods and conclusions made.

CASE STUDIES

Fieldwork

The field investigation of each case study was conducted in the form of walking, observation, sketching, photo or video recording, and semi-structured interviews.
The main contents of the investigation include:

Spatial Experience Diversity (Housing, Spaces and Activities)

These were obtained through observation, recorded by photographs and sketches. Residents' attachment to the community was influenced by the unique experience of each resident, which is mainly inspired by the diversity of landscapes, routes, architectural forms and spatial transitions [37]. Additionally, the ways residents behave in community spaces reflect their needs, their understanding of community space, and the way they build their sense of identity[38].

Participation

- Structure and Participation (Process, Stakeholders involvement)

This part of the content was obtained through online and semi-structured interviews, observation and sketches. The ladder of participation[39] (see Figure 4) was used to classify the levels of participation in the case studies and the analysis of improved design. In this research, 'Tokenism' can be understood as housing designed by architects and then communicated to the residents, whereas houses designed and constructed through cooperation between residents and designers, is regarded as 'Citizen Control'.

- Personality

These were obtained via semi-structured interviews with residents and by comparing the personalisation of living spaces between photos of original as-built homes, and photos of the homes after some years of occupation. The personalisation of the living space is a reflection of builders' personality and lifestyle and a measure to build self-recognition[40].

Analysis and evaluation

After the on-site investigation, the data obtained was analysed as follows:

Experience analysis

Residents' attachment to the community is influenced by the unique experience of each resident, which is mainly inspired by the diversity of landscapes, routes, architectural forms and spatial transitions[41]. Additionally, the behaviour of residents in the community space reflects their needs, understanding of the community spaces and the way they establish a sense of identity. Similarly, the personalisation of the living space also reflects the users' personality and lifestyle which is also a measure to build self-recognition[42]. Therefore, the analysis includes:

- Housing Design: how diverse was the housing? have they adapted to the preferences of residents in their occupancy?
- Spaces and Activities: how varied were the community spaces and the observed activities?

Participation analysis

- Structural and construction method analysis

This analysis includes structural design, construction method, steps and types of equipment for evaluating the ease of construction and expected building quality due to the variety of residents' background and ability[43].

- Assess the level of participation via the 'Ladder of Participation'. The case studies' analysis looks into the involvement and cooperation of different stakeholders within the design and build process.

Learning from the case studies

The following diagrams relate to the case studies' various parameters based on observations and collected data. All case studies used the same analysis approach explained above (see Figure 2).

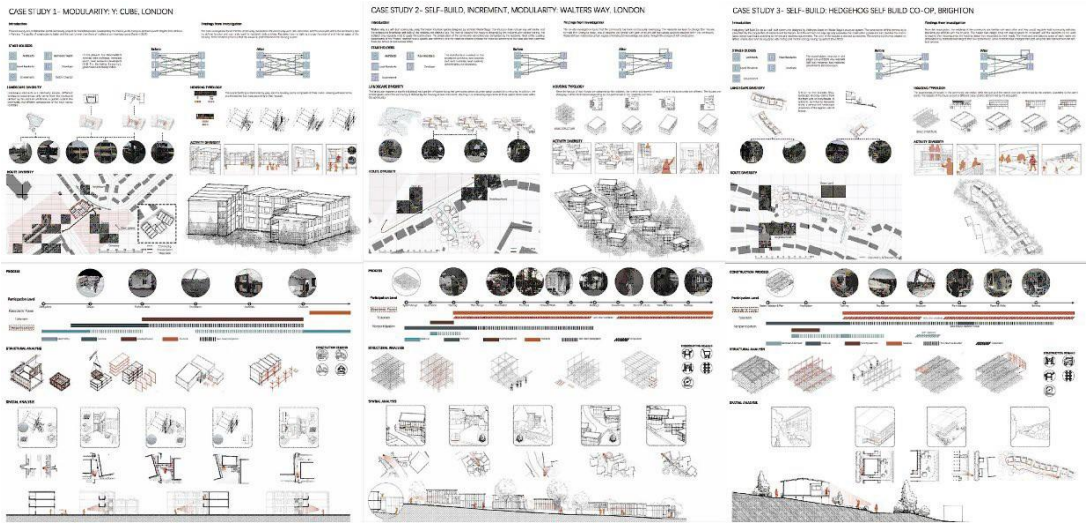

Figure 2. Overview of case analysis

Housing

Y:CUBE fails to provide residents with the right to personalised housing due to its form (see 'Y:CUBE Community' in Figure 3). Housing designs that respond to individual preferences, development and the fruits of labour are more conducive to forming strong place attachments, especially Walters Way, where houses have been altered incrementally by residents over time and the community appears more dynamic as a result (see Figure 3).

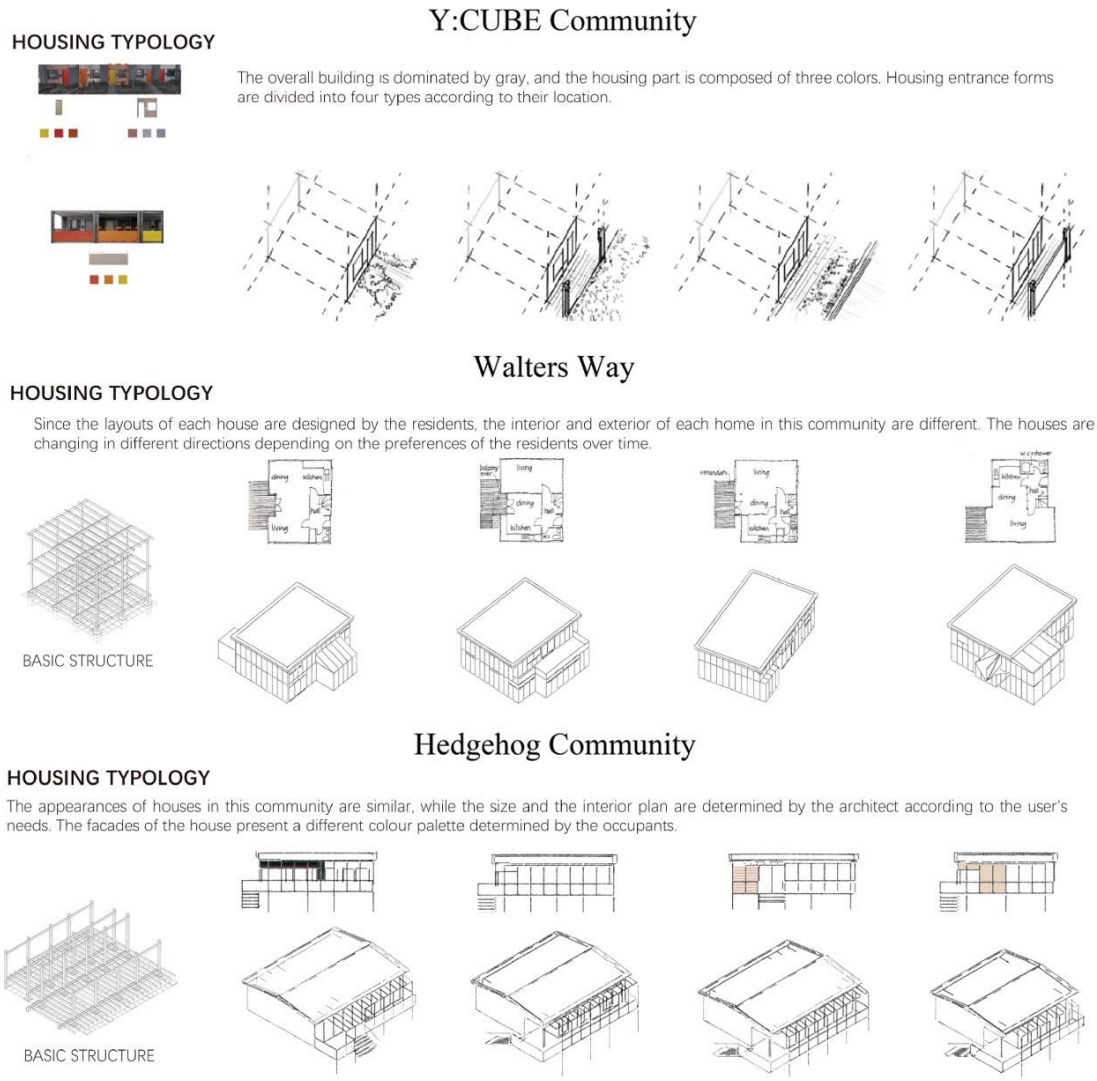

Figure 3. Comparison of housing analysis

Spaces and activities

The spatial designs of Walters Way and Hedgehog Community offer greater privacy and diversity than Y: CUBE (see Figure 4), which enhance the possibility and frequency of interaction among residents and activities, potentially helping not only to strengthen neighbourhood relationships but also to build more profound place attachment.

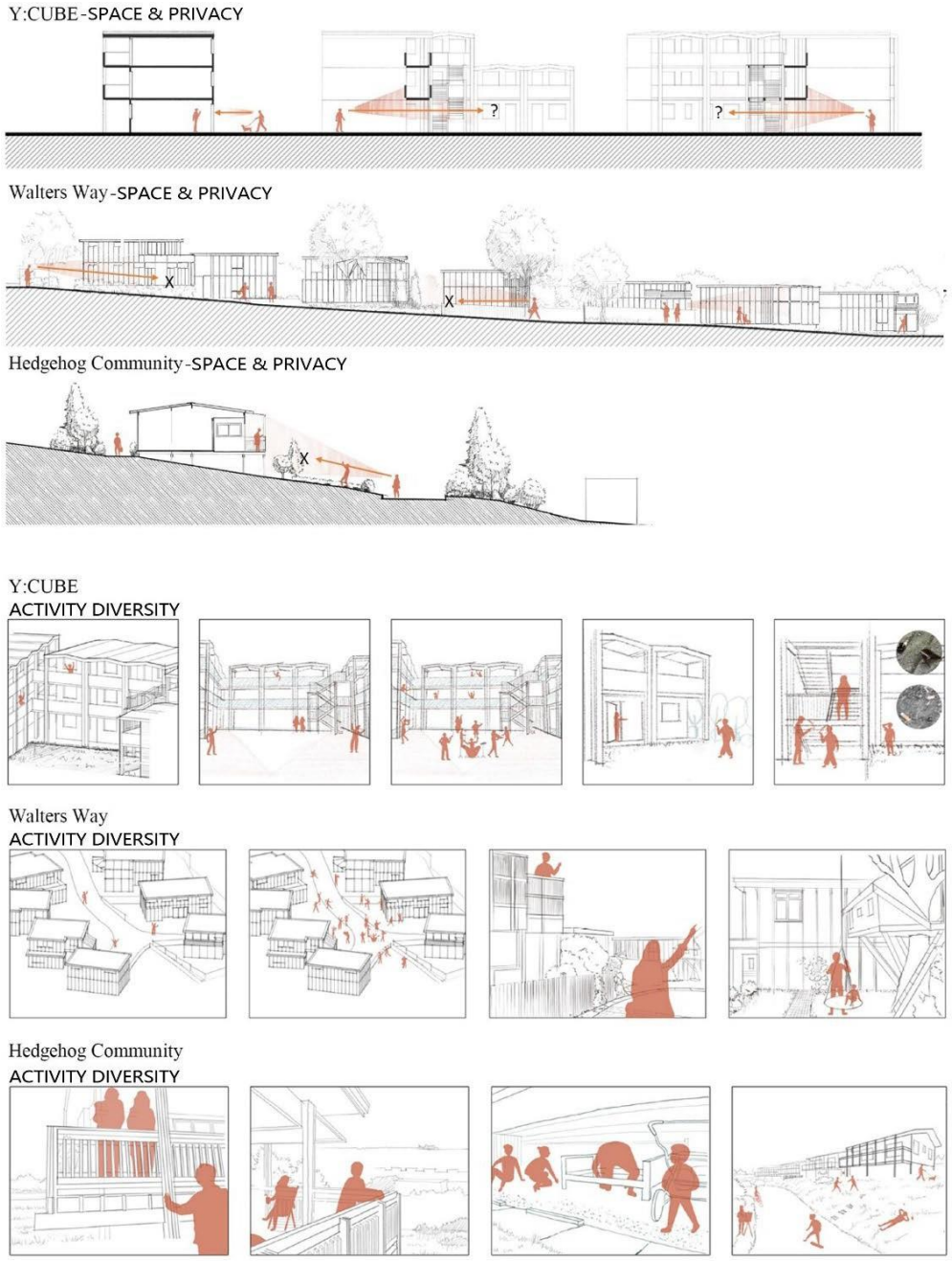

Figure 4. Comparison of spaces and activities analysis

Structural and construction analysis

Y:CUBE adopts a prefabricated multi-storey design, providing high-quality housing for low cost in a short time, but it has high requirements for equipment and technical staff (see Figure 5). The communities based on Segal self-built system are easy to build by cooperation with lower equipment requirements, but the construction period is longer.

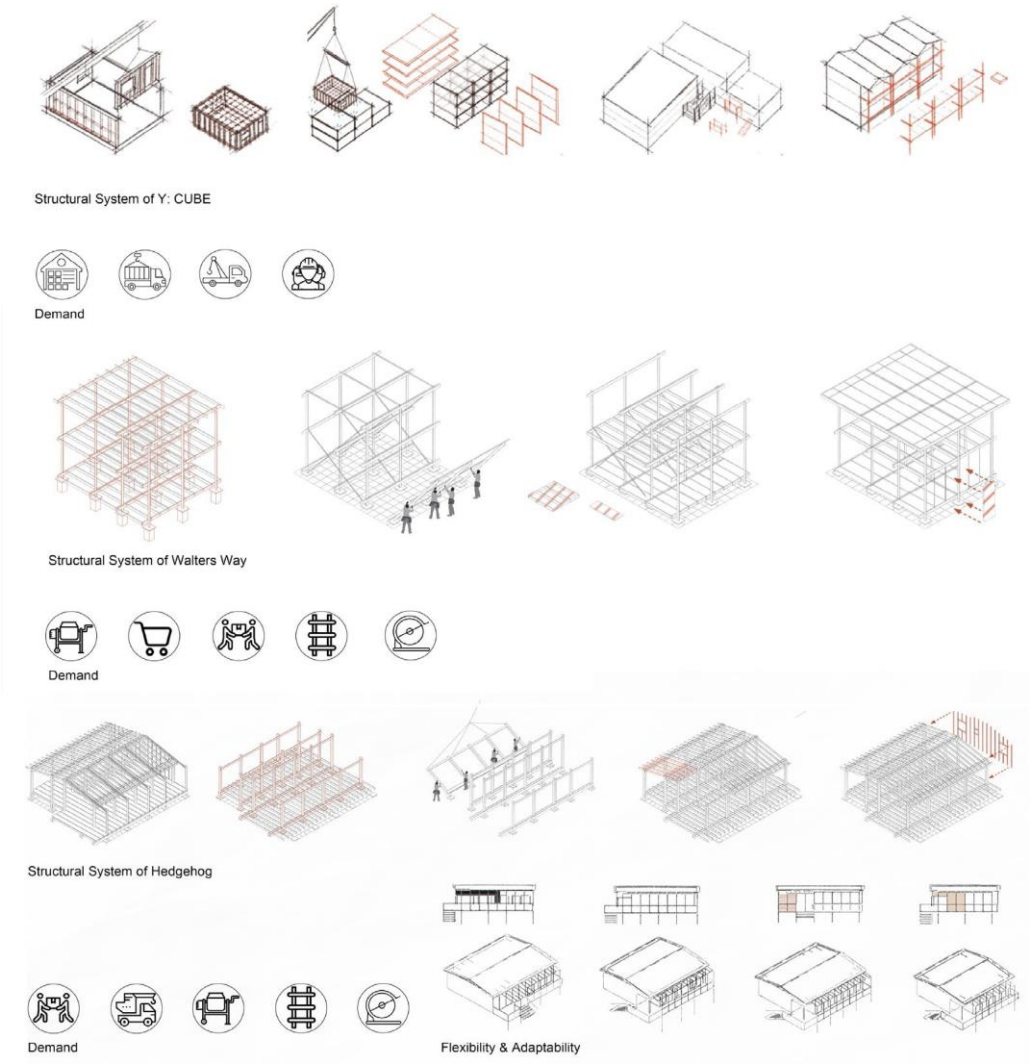

Figure 5. Comparison of structural systems

Participation and process

Y: CUBE is a prefabricated rental community with a lack of flexibility and variability, residents cannot participate in the construction. Walters Way and Hedgehog based on Segal self-built system are more flexible for residents to participate in the design, construction and increment (see Figure 6); the empowerment of residents brings a strong sense of belonging and identity to the residents via the process, forming a deep place attachment.

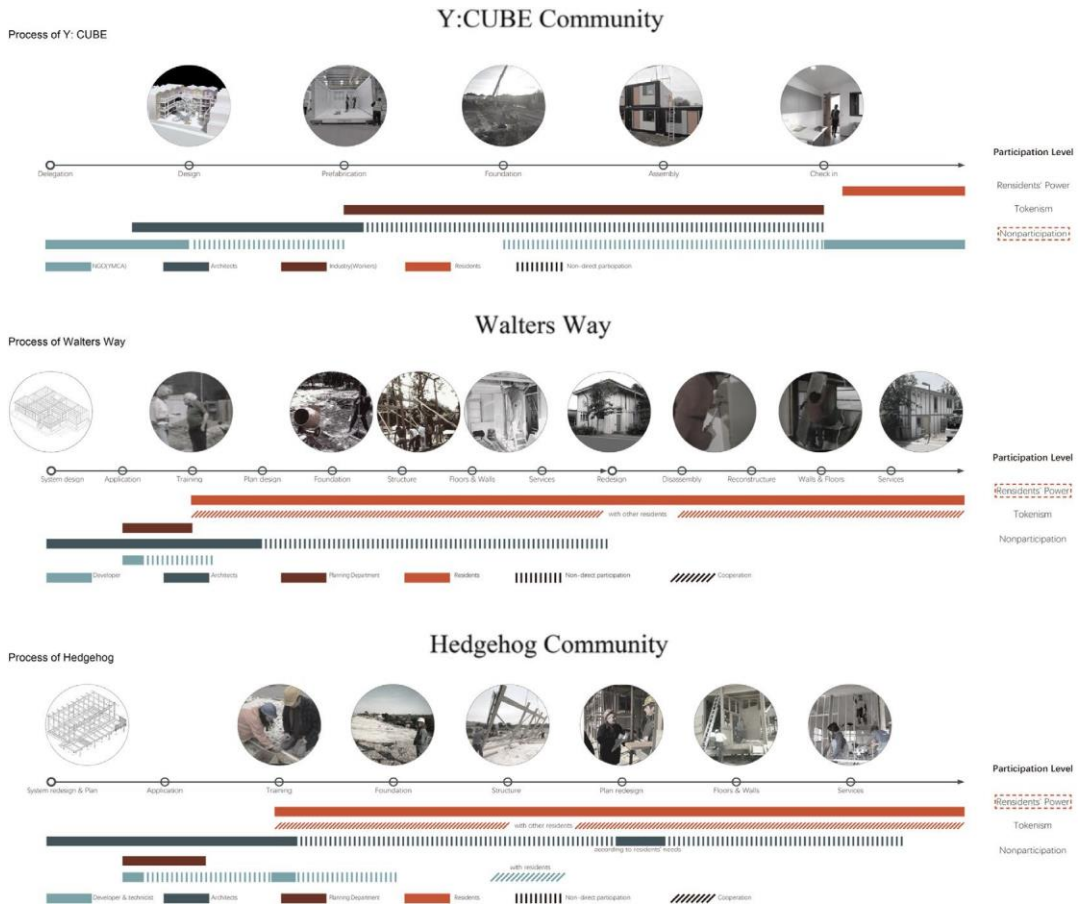

Figure 6. Comparison of community participation analysis

DEVELOPING THE PIONEERING BUSKERS INITIAL DESIGN FURTHER

Design methods application (tests)

According to the case studies, this research attempted to combine modular prefabricated assembly structures and improved Segal Self-built system to meet the needs of temporary housing with a short build period, replacing the incremental timber frame structure design in the original design (see Figure 7).

Multiple-layer co-housing would be more in line with their economic situation according to British NGO's surveys of homeless people, supplemented with corresponding services and self-built training. Diversified basic housing plans with incremental rules are designed for responding to residents' preferences, adopting a more robust main structure to ensure building quality. In addition to enclosing an atrium garden, the buildings incorporate vertical gardens that can be planted by residents. Space experiences similar to independent courtyards are made by the rhythm of building blocks, replacing the community semi-open landscape design with no internal planted garden in the 'Pioneering buskers'. Visual barriers at the required locations are set to ensure the privacy of community activities. The result of the design strategies application is shown in the Figure 7.

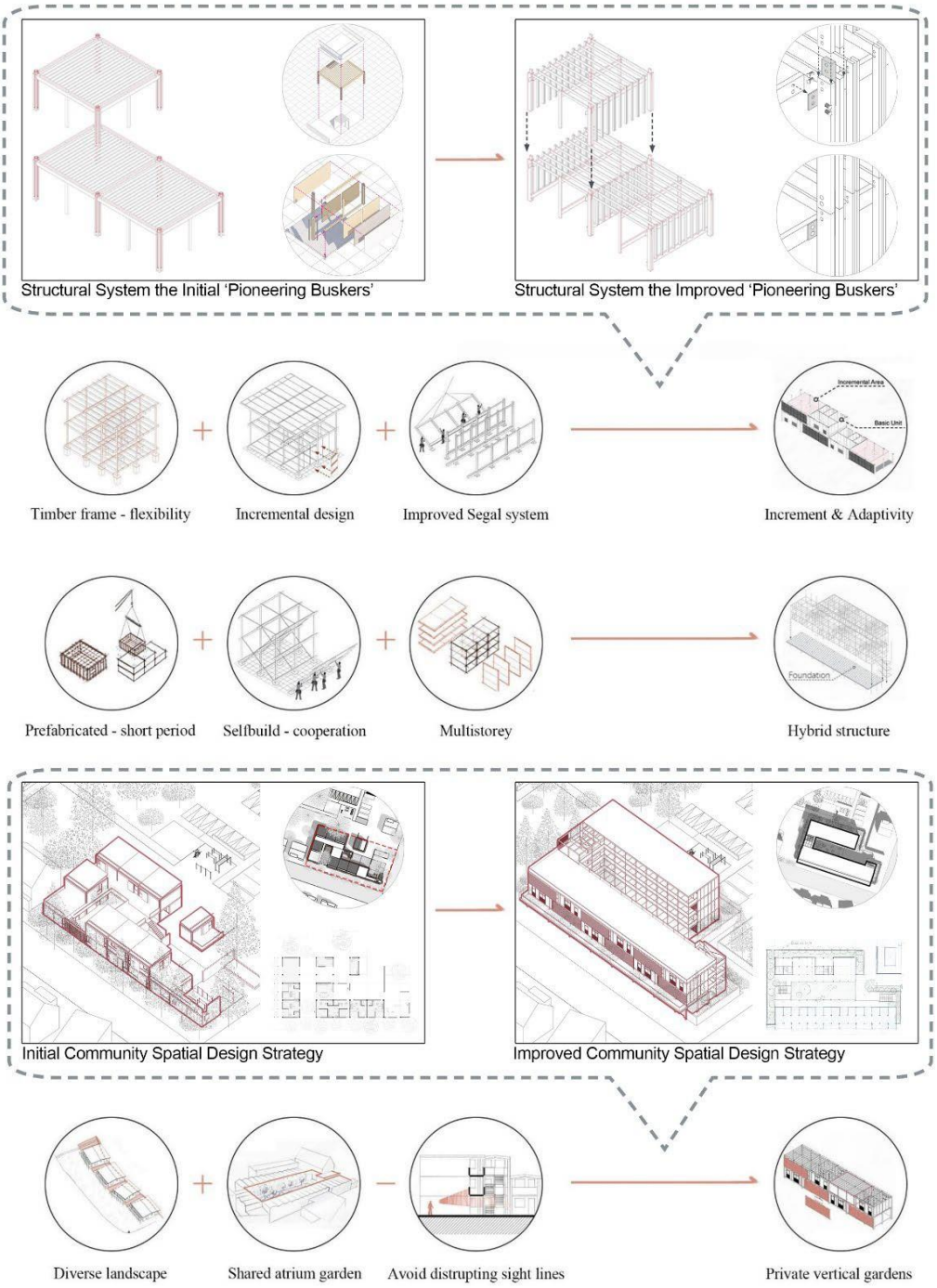

Figure 7. Improved design strategies

Housing

In the improved design, the plans were designed in a new way due to the change in the structural system. There are a variety of basic housing forms for residents, incremental spaces are set to match the development and preferences of residents (see Housing Analysis in Figure 8). With the help of users' occupancy, the houses will "grow" into unique houses over time. Housing design with Segal Self-build system would respond to individual preferences and the fruits of labour would be more conducive to forming strong place attachments and energise the community.

Spaces and activities

Open communal spaces in the investigated communities do not seem to promote spontaneous activities within the community, but the spaces with privacy and diversity do. The new design improves the diversity of community space experience by providing spaces managed by the residents and housing diversity. Internal community activity spaces with privacy are made for encouraging community activities (see Figure 8), thereby helping to form their place attachment.

Structure and construction

The structure of the improved design is prefabricated at ground level, providing rapid temporary accommodation. The rest of the structure system is the improved Segal self-built system which allows a slower pace of development, with a high participation level and flexibility (see the part: Structural Analysis of Figure 20), which is found to be beneficial for residents to acquire deep place attachment and neighbourhood ties in the investigated cases. When the homeless settle in the community, they will be trained in the prefabricated rooms on the ground floor, which will then later be rented as street-side commercial units. The Incremental area of each of the upper and lower floors is staggered, therefore, the incremental area is constructed after the finishing of the basic housing part under the guidance of architects. It reduces the difficulty of increment and guarantees the structure of the building by architects' early participation. The limited incremental area would be better for the residents to carry out various incremental constructions.

Participation and process

The improved design is high participation as 'Citizen Power'. The construction of New Design includes a prefabricated assembly similar to the Y: CUBE, and a self-built with incremental section. The results were encouraging (see the final part of Figure 8): the prefabricated temporary housing not only gives users an emotional base before they cooperate but also facilitates the participation of more social groups. As for their cooperation in incremental changes, the completed structure gives users more cooperative options. The concept of incremental housing also allows their development to synchronise with community development [44]. In addition to enabling the housing to match the development of residents, the adoption of incremental features could also change the value of housing (increase in living space), and the circulation of housing in the market could avoid community stigmatisation.

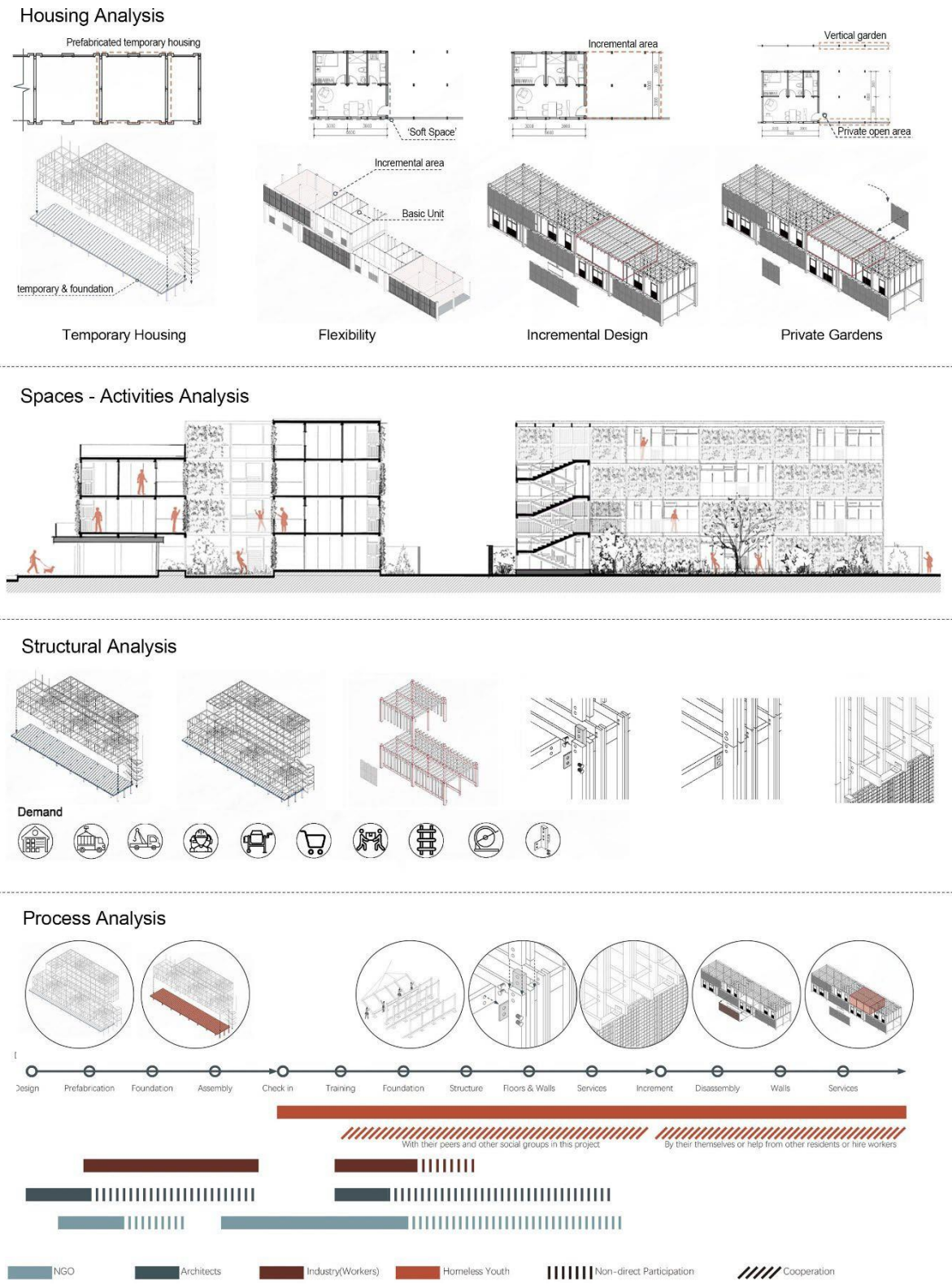

Figure 8. Analysis of improved 'Pioneering Buskers'

CONCLUSION

From the results of the application of design strategies (see Figure 9) and analysis above, this research shows the potential to bring positive impacts to the well-being of residents and help them develop their

community via empowering them and strengthening their place attachment in community design within the context of new district developments.

In summary, the wellbeing of homeless youth should be put on top of the agenda, and the establishment of place attachment, empowerment of residents and the involvement of architects in collaborative design with residents ought to be valued in the self-build housing assistance projects for homeless youth.

Conclusion of design strategies that can benefit residents' wellbeing:

a) Community landscape design that includes participation in gardens in the Walters Way and Hedgehog communities not only increased community activity but also enhanced neighbourhood relationships;

b) Self-built houses based on Segal self-built method can increase the diversity of houses and thus choices for residents because of the flexibility and construction ease of this timber frame structural system. Furthermore, in the improvements explored in this design research, this structural system has shown greatest potential (see Figure 8);

c) The landscape space within the community should be private and diversified with reasonable transitions with the residential spaces since the external disturbing sight lights and the monotonous landscape in the case of Y:CUBE have reduced the possibility and frequency of community activities (see Figure 10 and Figure 11).

Figure 9. Vision of the improved 'Pioneering Buskers'

Self-build housing assistance projects should first consider the empowerment brought by structural design of the house and design strategies. The combination of the prefabricated structure and the timber frame structure can provide a stable environment for self-built training. Based on this hybrid structure, an architect-led participatory design strategy with collaboration between homeless youth and other stakeholders can not only guarantee the quality of the building but also enhance the homeless youth's connection with the community and other social groups, benefiting their wellbeing.

Due to time constraints, the sample of this research is insufficient (only two of the investigate respondents per project), the contradictions within the user group are uncertain, which may bring hidden dangers to the products of their cooperative labour, housing. Future research should focus more on homeless youth, as the focus of assistance programs, and more case studies should be involved.

ACKNOWLEDGEMENT

This paper is based on my master's in architectural design dissertation at the Welsh School of Architecture, Cardiff University, supervised by Tabitha Pope, Rowan McKay and Marie Davidová.

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COMPLEXITY OF RECONSTRUCTION: NATURAL BUILT ENVIRONMENT OF THE RYUKYU LIMESTONE INTERRELATED WITH THE BUILT ENVIRONMENT OF THE WASHINGTON MONUMENT AND SHURI CASTLE

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INTRODUCTION

This paper is based upon the author's previous research on "The Preservation of Language & Culture: Restoring Sustainable Intangible Cultural Heritage through Museum Volunteer Work for Cultural Empowerment" published with AMPS in 2019 proving that there is a Socio-Cultural impact on tourism interrelated with traditional lifestyles of Okinawa as well as bureaucracy [1]. The aim of this research is to spread the architectural art of Okinawa internationally through the architecture of linguistics (English as a global language) to bilingually assist public and private sectors in devastation. Recently, chaos occurred on October 31st, 2019[2]. Shuri Castle (designated as an UNESCO World Heritage site in the year 2000) in Naha city was devastated by fire[3]. The Governor of Okinawa Denny Tamaki with Japan's Chief Cabinet Secretary Yoshihide Suga and UNESCO's Director-General Audrey Azoulay assured Okinawa that Shuri Castle would be reconstructed by May 2022 which will mark the 50th anniversary of Okinawa's reversion to Japan [4][5]. The Okinawa prefectural government set-up a crowd funding donation webpage raising over 430 million yen (￥433,145,000) in a week accumulating up to 920 million yen (￥920,335, 099) in 2020[6]. In a sense of déjà vu, the late King Iku Sho (Shuri Castle) donated a block of Ryukyu Limestone in 1832 to construct the Washington Monument in commemoration for George Washington, in trust, for democracy [7]. That donation legacy continues with the Shuri Castle reconstruction [8]. The findings of this paper will indicate how the Complexity theory with the UN's Nexus Approach is interrelated and entwined into a Russell's paradox assuring change within the complexity of nature versus the built environment for the purpose of reconstruction after devastation [9]. Shuri Castle photos filmed in August of 2019 will be placed in the archives of AMPS in hope of a renovated future and that is where we are today.

Keywords: Ryukyu Kingdom, Okinawa, Sustainability, Natural v.s. Built Environment, Tourism, SDGs, Ryukyu Limestone, Complexity Theory, Chaos Theory, Butterfly Effect, Nexus Approach, Shuri Castle, and the Russell's Paradox

COMPLEXITY THEORY, THE CHAOS THEORY, RUSSELL'S PARADOX & THE NEXUS APPROACH

An original definition of the complexity theory is tiny variations that can change a mass which is connected in societal chaos that is systematic. Russell's paradox says that those systematic rules will seem to be set but, in fact, they are not. Therefore, we can change them using the Russell's Paradox to fight the complexity theory and the chaos theory, through the United Nation's Nexus approach. This interrelation of concepts will explain the importance of the environmental resource on Okinawa that preserves the hereditary political balance as the keystone of democracy in the Pacific [10].

OKINAWA'S NATURAL V.S. BUILT ENVIRONMENT

In the author's previous research she discussed about the colonization by one man named Bernard Jean Bettelheim and how the United Kingdom with Commodore Matthew Calbraith Perry intervened, through structural approaches, to make the change happen by taking Bettelheim off the island[11][12]. Well, complexities of relationships or interrelations changes our lives by invading our complex social structure. However, we cannot predict behaviors in the chaos theory causing the butterfly effect in conjunction with effects that will contribute to other waves of change in predictability. We simply have to deal with them head on. To our surprise, the ancient Ryukyu Kingdom's limestone had traveled all the way to the United States like a "tourist" to make the Washington Monument in Washington D.C. How did that happen? Well, greed is the complexity of the interrelation between the natural vs. built environment and that is theme of this paper.

Limestone is a profound architectural material that is the major ingredient of cement, mortar, and concrete[13]. In other words, it is the building blocks that sustain our lives. It just so happens that Ryukyu Cement is interrelated with Japan Cement Association. The Finance Minister Taro Aso's family owns the Aso Cement and his cousin Prime Minister Shinzo Abe's family owns "Ube Industries" which also owns "Ryukyu Cement" on Okinawa that is building the US base off the coast of Henoko Bay[14][15][16][17][18][19][20]. Limestone is not just a sedimentary rock of dead organisms (with a high percentage of calcium carbonate $CaCO_3$) but paradoxes leading to the loop of change [21].

THE COMPLEXITY OF RYUKYU LIMESTONE

Limestone is a stone that lives in self-preservation with each Russell's paradox within the complexity theory's chaos. In metaphor, limestone is made by calcium and survives with water, it doesn't eat, it collects. To understand the hereditary political hierarchy of nature we need to refer to the earth's origin [22].

In Okinawa, there is a cave full of limestone called *Gyokusendo* (The Cave of Fountain Treasures). Even today, the soil above the cave absorbs the rain filtering down through the limestone forming more limestone layers. In other words, limestones established the natural landscape of the Ryukyu Kingdom after the ocean water had receded 350 million years ago[23]. Generations evolved while producing coral reefs like hereditary politics but forming to survive on ground as limestone (stalactites) or the built environment policies [24].

Ryukyuans discovered that trees could intentionally root to break the limestone for water and calcium to sustain their life. That philosophy is the resilience and resistance, with tolerance as an Invictus soul that Okinawans have today. Okinawa itself is a natural built environment surviving under the hereditary political hierarchy of greed with pride of colonization. Okinawa continues to resist and progress as the top tourist attraction. In other words, it sustains Japan's Gross national product with each sacrifice of her backbone [25][26].

THE LEGEND OF ORIGIN THOUGH LIMESTONE

Ryukyu was a matriarchal society believing humanity was born from women and returned to woman or in the Christian philosophical sense the concept of Ash Wednesday, "ash to ash, dust to dust". Remember the cave, Gyokusendo with the limestones? Well, caves are like the womb of mother earth we are connected to her with the umbilical cord like a parasite. Hence, the invention of the belly button. In the philosophy, it is said, that the goddess *Amamikiyo* was born from the ocean horizon (heaven), like the old Greek and Roman philosophy of Aphrodite, the goddess of love, establishing the natural built environment cycle while landing on Kudaka Island and establishing the islands on earth, like Noah's Ark in the Christian sense. Amamikiyo stood ground as a volunteer to sacrifice her life by giving birth to humanity. However, the concept of heaven was very different from the Christian view of the heaven being located in the firmament. According to legend, she left her legacy through the representation of the rock formation (limestone) and holy grounds called *Seifa Utaki* (Holy Stone). The large slabs of limestone rocks are naturally formed in representation of the opening of the womb, holy grail, for it is shaped as a triangle just like the pyramids in Giza, Egypt. A long time ago, only women could worship the Goddess at Seifa Utaki (the monument of the honor of sacrifice) but now, times have changed to the occupation of equality. That limestone shows us the hereditary political hierarchy of the power of humanity to change and sustain through chaos [27].

THE CHAOS THEORY & RUSSELL'S PARADOX ENTWINED LIKE A HELIX

King Iku Sho united the Kingdom as one king or a one family rule. Unfortunately, in 1854, Commodore Matthew Calbraith Perry landed causing a chain-reaction of change (chaos) in the hierarchy. Ryukyu was doomed with the occupation of Japan and the United States. Okinawa is the epitome of what the complexity theory and the chaos theory is all about, survival. That is why major infrastructure projects to build the second runway at Naha International Airport was completed on March 26, 2020[28]. Unfortunately, on October 31, 2019, Shuri Castle was devastated due to fire, without sprinkler placements and functional fire hydrants. The fire wasn't new for it happened five times in history. There were three fires during Ryukyuan times and the fourth time during the Battle of Okinawa, and the fifth happened on Halloween. With the volunteer spirit of Okinawa, Okinawa Prefecture started a crowd funding page that basically raised enough funds to rebuild the castle by the year 2022[29]. Whether the fire was deliberate or not, the hereditary political economics will prevail. Okinawa continues to progress with building more hotels to deal with tourism since Okinawa has more ruined castles to see. It is a culture of tragedy but became a monument of honor and sacrifice. In other words, Okinawa has become the epitome of Dark Tourism [30]. Okinawa is also planning to get funds from Tokyo through attracting international conferences, conventions, and exhibitions concerning trade. Prior to the fire, Okinawa rejected casinos since the revenue will not go to the people of Okinawa but to Tokyo [31]. Okinawa plans to reel 12 million tourists by the year 2021 which will turn Okinawa into a tourism business island [32].

THE NEXUS APPROACH & SUPER CITIES 2030 FAÇADE

The capital of Okinawa is Naha City. Naha City is famous for Shuri Castle but also the beautiful limestone walls with roads that lead to cliffs, beaches, and shopping. According to the bottom Table 1: The Ministry of Land, Infrastructure, Transport and Tourism (MLIT) of 2019 report states, that the prices of land have gone sky high in Naha City's Kumoji, Izumizaki, Matsuyama Maejima, Makishi, and Matsuo within 5 years the prices have gone up 40 percent. Other places that have gone up 30 percent are the following: Omoromachi, Ameku, Aja, Tomari and the Shintoshin regions. One square of land costs approximately 400 or 500 million yen [33]. In other words, Okinawa was in an economic bubble

until the Corona-19 pandemic [34]. The following are the most popular areas in Naha City that sustains the economy.

Area	2018 Yen/m²	2019 Yen/m²	%
3-6-11 Omoromachi, Naha City, Okinawa, Japan	270,000	351,000	30.0
1-7-14 Ameku, Naha City, Okinawa	265,000	330,000	24.5
3-1-8 Maejima, Naha City, Okinawa	323,000	460,000	42.4
3-1-1 Kumoji, Naha City , Okinawa	1,010,000	1,400,000	38.6
5-8-7 Nishizaki-cho, Itoman City, Okinawa	101,000	118,000	16.8
2-4-4 Irijima, Urasoe City, Okinawa	85,200	95,500	12.1
3-1-8 Maejim, Naha City, Okinawa	32,3000	460,000	42.4
http://www.mlit.go.jp/common/001279383.pdf			

Table 1: [The Ministry of Land Infrastructure, Transportation and Tourism (MLCIT)[Ibid]

Naha City established the monorail service to be connected with bus routes so that all transportation possibilities for tourists would be met. Including building the *Yui* Monorail even further to go as far from Naha International Airport to *Tidako Uranishi* station [Ibid].

Okinawa Urban Yui Monorail Route Map (Stations)				
1 Naha International Airport	2 Akamine	3 Oroku	4 Onoyama	5 Tsubogawa
6 Asahibashi	7 Prefectural Office	8 Miebashi	9 Makishi	10 Asato
11 Omoromachi	12 Furujima	13 Naha City Hospital	14 Oibo	15 Shuri
Extended Route Map Opening October 1, 2019				
16 Ishimine	17 Kyozuka	18 Urasoe Maeda	19 Tidako Uranishi	Total Transportation time: 38 minutes

Table 2: [Yui Monorail Map][35]

Okinawa will have to extend the monorail, as of now, driving is the most convenient transportation throughout the three-hour round-trip island.

According to UNESCO, the Nexus Approach of the "Smart Cities of 2030" promotes a platform for innovated businesses as a "fabulous step stone" for restructuring communities that are controlled by the framework of hereditary politics of pride and greed [36].

OKINAWA'S LIMESTONE DEPOSITS

The Ryukyu Archipelago consists of a wide range of Ryukyu limestone but due to World War II and the U.S. Occupation, further research on the subject was interrupted [37]. However, the Okinawa *Chigakukai* (Okinawa Geology experts) published their research in 1982 which states that the following areas contain most of the limestone deposits[Ibid]. The areas are in Motobu especially Ie Island near Nago City, and Gushikawa City, Central Okinawa including Naha City in the Southern part of Okinawa[38].

Ironically, due to over mining to produce cement for Henoko base, mountains have significantly disappeared.

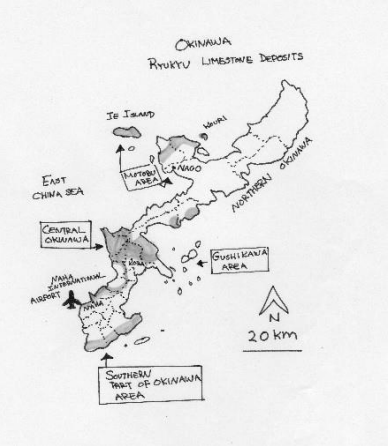

Figure 1 (drawn by Hirona Matayoshi) [Okinawa Ryukyu Limestone Deposits][39]

LIMESTONE & THE DEEP CONNECTION WITH DEMOCRACY

You may think what does limestone have to do with hereditary politics? Well, to understand the complexity of chaos and understand Russell's paradox's choice or change in resilience, you have to see the birth of the façade of mystical "stalactite policies" surrounding and engulfing the natural citizens. The system of the world is based upon global goals for sustainable development. As of now, the United Nations are interrelating the Sustainable Development Goals (SDGs) with business and education including a variety of academic discipline[40]. The United Nations effort is to promote local knowledge for sustainable development so that policies targeting education can bridge the gap to prevent terrorism and produce pacifism. The Senior Analyst of the Organisation for Economic Co-operation and Development (OECD)'s Centre for Educational Research and Development (CERI) Professor Bruno della Chiesa' hypotheses (the motivation vortex hypothesis & the positive cultural tesseract hypothesis) states that within the chaos or vortex will come forth a tesseract who will instigate change [41] so that "no one is left behind"[42] in the Nexus Approach curriculum. Hence, local corporate stakeholders began to cooperate. Onna Village was put on the grid by the United Nations since it connected itself saving the coral reef through the stakeholders, who need tourism, to promote eco-tourism assisted by Okinawa Institution of Science and Technology (OIST) to promote the future sustainability of the village [43]. Including other stakeholders such as the banks (Okinawa Bank) have also vowed to participate [44], including Urasoe City has also included SDGs in their redevelopment plan [45][46] as well as a professor, like myself, it is my duty to become a stakeholder to assist through the curriculum development of sustaining a national treasure, *Karajiyui,* and to support tradition as well as the progression of the tourism on the island. My job is to project the bitter reality of change to sustain tradition through the Nexus Approach.

THE LOOP OF CHAOS (FIRE AND THE WASHINGTON MONUMENT)

We need to look back at when Commodore Perry landed on Okinawa. He didn't leave empty handed. He left his monumental footprints, a legacy, that sustains the hope and expectation. The Ryukyuan King gave Perry a huge block of Ryukyu Limestone, a treasure, to be placed into the construction of the Washington Monument in commemoration for the first President George Washington, the founder of democracy in the United States[47][48][49][50][51][52][53]. As for the connection between the Washington

Monument and United Kingdom, it seems 'Coade, London, 1793' was a present to the US government to be embedded in the Washington Monument[54] as well. The writer researched the 'Coade, London, 1793' brand and found that it is related to Eleanor Coade of the Coade Ltd company that dealt with various architectural stoneworks in the United Kingdom[55]. The wheel of fortune turning mutual intentions to be placed into the Washington Monument as a constant reminder how two kingdoms (Ryukyu and the United Kingdom) contributed in the development of the American Democracy. The fire at Shuri Castle destroyed Perry's footprint or monument of honor in the Royal Guest House yet his last legacy still stands ground in Tomari International Cemetery which connects the fire of Shuri Castle with the Washington Monument. However, remember, there are two sides of the same coin.

In 1854, Perry signed the Treaty of Peace and Amity with Okinawa. His memorial limestone monument in Tomari International Cemetary located in Naha at Tomari Port has his words engraved, *"Prosperity to the Lew Chewans (Ryukyuans) and may they (Ryukyuans) and the Americans always be friends"* (Commodore Perry at a reception in honour of Omiudun (the Royal Guest House) Shuri, Okinawa, June 6, 1853)[56]. In betrayal of the Battle of Okinawa, Shuri Castle was burned but later reconstructed without sprinklers and functioning fire hydrants, for the year 2000 Okinawa Summit, endangering world leaders and tourists. The façade of the 2019 burned castle was on the "all-American holiday" but the reality is the castle will be reconstructed to mark the 50th anniversary of the return of Okinawa to Japan from the United States of America in 2022, while igniting the "fireworks" in celebration of the hereditary political hierarchy[57]. However, betrayal goes both ways[58].

SHURI CASTLE'S LOOP OF RESURRECTION FROM RUINS STANDING GROUND

According to authorities, the cause of the Shuri Castle fire is still unknown, whether it was an accident, arson, or an "X File" is irrelevant. Many of us assumed the façade that Shuri Castle belonged to the Okinawa Prefectural Government but, in fact, it belonged to Japan while the facilities were loaned to the prefecture and, in a way, it was returned. The paradox lies upon a question of "who will resurrect the ruins?" That is the Russell's paradox in a chaotic moment[59]. Under the Nexus Approach, the Japanese government has decided to show the ruins on display collecting funds from the tourists to resurrect and flourish the GDP reality. Okinawa is an island of money, like in the famous British movie "007 Casino Royale" when Vesper Lynd, conveniently, introduces herself to James Bond by saying, "I'm the money" (Treasury)[60]. Remember, enlightenment comes last.

Inbound Visitors to Japan				
Ranking	Region	2018 visitors	2017 visitors	Increase
1	Tokyo	84,162,383	75,102,530	112%
2	Osaka	54,608,725	48,318,408	113%
3	Kyoto	19,371,692	16,924,117	114%
4	Chiba	18,610,421	16,336,438	114%
5	Hokkaido	17,123,423	15,537,164	110%
6	Fukuoka	15,085,813	12,858,557	117%
7	Okinawa	13,106,344	12,461,621	105%

Table 3[61]

CONCLUSION

As for where are we today? A vortex of change starts with an individual movement that starts ripples in the pond of society. Those ripples are a façade that look like chaos but, in fact, they are well controlled in a circle that can become a tidal wave or disappear but the next paradox, like a bridge in the pond, will start another ripple to change the outcome. In other words, Shuri Castle being ravished by fire will revive with another ripple of hope of "Regional Micro Tourism" continued, in a loop of choices, for better or for worse. Those ripples are the "will of cooperation" to continue with volunteers instigating the next wave like limestones connecting each layer in a bigger picture of sustainability in resistance, resilience, and tolerance. The original limestone foundation of Shuri castle is still designated as the UNESCO World Heritage of 2000 resurrecting like "Amamikiyo" (nature) caught in the paradox of the built environment. Through the mirage, we see the real built environment, the lumber used to reconstruct the castle is also owned by respectable hereditary politicians like the previous prime ministers Yasuo Fukuda, Yasuhiro Nakasone, and Keizo Obuchi families, who have offspring or the "Holy Trinity", that need to sustain the Japan Federation of Wood-Industry Association to control Japan's legacy of the built environment and that is the complexity of reconstruction with eager cooperation of collective lumber trade politics[62][63][64] manipulated to prevent atrocities with equipped sprinklers[65] and unlocked fire hydrants choosing better than worse without the divide in the "Bonfire of the Vanities"[66][67][68][69].

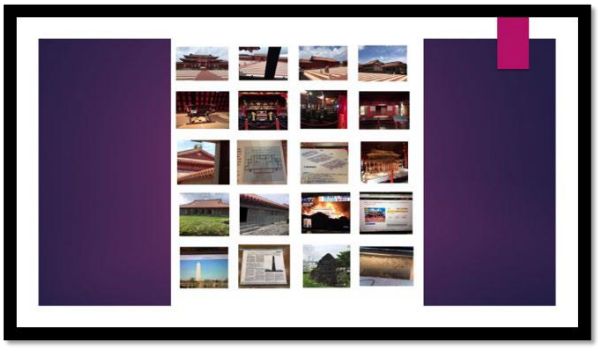

Figure 2 Photographed by Hirona Matayoshi

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SHOPPING CENTRES AND CONTEMPORARY CITY LIVING ROOMS OF THE "RURUBAN" COMMUNITY OR SPACES OF INTOXICATING ATMOSPHERE?

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INTRODUCTION

After all, what is the role of shopping centers that have recently appeared in the urban regions where we live? Do they help or not to build the contemporary cityscape-landscape? Do they configure spaces whose essence is the elimination of reality and the entry into the hyper-real [1] [as referred by Rem Koolhaas in his last participation with the electronic music band Tempers (2018: 2)]? Do they conform, perhaps, the generators / engines of the new urban space and the new urban images of the zwischenstadt, as suggested by Alex Wall (2005: 237) in "Victor Gruen. From Urban Shop to New City"? Or are they artifacts that absorb the real and the false into a new synthesis, as Norman Klein said[2] in "The Electronic Baroque", (1999: 114)?

According to Lars Lerup (2013) despite the incredible technological advances that the internet has provided, we will continue to need spaces for "face to face", that is, for the physical meeting between the "city users" of the new city-region, so we can infer that this facility would provide a magnificent answer to this and other needs. Manuel de Sola-Morales (2004) spoke about the importance of territorial corners in response to a territory that escapes and that needs to be legible. And Mirko Zardini (2004) put forward a first response to this call in an article from the same publication entitled "Corners of the periphery, where are you?"

To answer these and other questions, we organized the work in four parts: first, we outlined the fundamental aspects that characterize the contemporary city (physical scope of the investigation); second, we make a note, even if telegraphic, about the phenomenon of consumption; third, we present the action of consumption in the transformation of the contemporary city; and fourth, we move on to discuss the relationship between the shopping center and the contemporary city.

AN APPROACH TO THE CURRENT CONDITION OF THE CONTEMPORARY CITY

As explained by Graça (2010: 343), the contemporary city is characterized by a diffuse structure (resulting from decentralization and endogenous growth); a punctual concentration (resulting from accessibility and mobility constraints); a polarized and decentralized logic (derived from networks of relationships at different scales - local, regional, national and even international) and is organized on a flow dynamics (which gives it "product character" and which builds its capacity, identification, differentiation and competitiveness); the square and the street are no longer the places of social

interaction par excellence, but become places of punctual and occasional social gathering. Therefore, they cease to be a "place" and become a "connection", recognized only for their ability to allow the transit of people and cars[3].

According to Bernardo Secchi (1993: 116-117), when it ceases to be a recognizable meeting place, the only thing that is asked of the public space is that it "be permeable and that it can be crossed with as little friction as possible"[4]. After the compact city, concentrated and separated from its surroundings; after the extensive, metropolitan-scale city that expands to its peripheries through mass transport and the automobile; we are now facing a new phase of urban growth, the city goes beyond its spatial framework and is no longer a continuous and spatially coherent entity (it weakens the cohesion of fabrics and generates a weak image of its spaces). Fragmentation is its matrix.

As explained by Graça (2010: 345), although fragmentation is not a completely new phenomenon, it acquires a larger scale and affects a larger population volume. Winning a larger scale causes two things: the fracturing illegibility of the territory and the loss of a sense of identity and when affecting a larger population volume, it causes the disintegration of relationships between individuals. However, according to Stefano Boeri (2000: 365), this fragmentation would be characterized more by the isolation of elements than by its chaotic accumulation. "The principle of difference no longer works between homogeneous and distinct parts of the city (between 19th century fabric, medieval center, social housing on the periphery) but between each molecule of the new diffuse city"[5].

According to Stefano Boeri (2000: 366) "the principle of variety works by leaps, combining urban types scattered throughout the territory, instead of combining the individuality of the homogeneous city."[6] Each urban element will be a distinct and separate component from the rest. The network does not respect geographical proximity or any other criteria of the compact city. The physical proximity of the traditional city gives rise to the discontinuity of the economic logic of post-Fordism.

However, as explained by Graça (2010: 345), if the fragments of this "city of products"[7] are physically separated by voids and discontinuities, through imperceptible networks (that is, the usage patterns of its users) it maintains a close connection between itself. Each actor builds his image of the city, as in a "city a la carte"[8] (Robert Fishman, 1990: 24-55) due to the multiplicity of dispersed and isolated elements. Bernardo Secchi (1993: 116) stated that the network of relationships between places was and is totally different from person to person and that each actor will have their own collection of collages of their own urban landscapes. The city is thus no longer seen as a static arrangement of objects in a unitary space but as a domain of invisible networked relationships.

It is now telecommunications (telephone, radio, TV, fax, satellite, gps, mobile phone, internet) that allow us to overcome the physical distances of the discontinuity.

Finally, according to Graça (2010: 347), it is important to ask whether this hybrid tissue will be diversified and heterogeneous? What if the diversity of functions and activities actually build urbanity or just its simulacrum? Are there really new centralities in these fabrics?

According to Peter Hall (1998: 43-50), "metropolitan nuclei"[9] are created, which are density phenomena in the form of key urban elements. If in the compact city the key elements were historic buildings or public spaces, in the contemporary city it will be the shopping center, the office buildings, university campus, train stations or other large collective facilities to mark and refocus the new urban landscape.

However, unlike what happens in the compact city, the urbanity of this enlarged city does not structure its density in the physical continuity of its fabrics and in the network of public spaces - according to Graça (2010: 347) - "the urban metastases that are formed around the power of attraction of the facilities (…) are discontinuous fabrics connected by invisible networks."[10]

A NOTE ON CONSUMPTION

G. Amendola (2006: 81-98) stated [that] "today it is almost impossible to draw a clear border between consumption and the city, between the experience of consumption and the urban experience, between the modern "flaneur" and the consumer. [Since] Consumption is not just the basic routine activity of contemporary urban life, it seems to be (…) a way to experience [our own] urban life." [11] And Graça (2010: 33) stated that the demand for growing and differentiated consumption offers has become one of the defining characteristics of contemporary urban life.

However, as explained by Graça (2010: 33), it is only at the beginning of the century. XX - with Fordist mass production associated with the appearance of the brand - that the act of consuming takes on its current meaning. According to the definition of Colin Campbell (1995: 96-126) [this is] "the activity that involves the selection, purchase, use, maintenance, repair and disposal of a product or service." [12] But consumption is much more than that, it deals with knowledge and other immaterial goods or with activities so diverse that range from the act of buying, to consuming food, tourism, rest and leisure.

According to Graça (2010) the focus is now on the condition of the experience and then on the individual and his time. And as spaces for collective use and places of consumption overlap, strategies are to convert users into consumers. That is, if advertising and marketing take users to commercial spaces, it will be the quality of the consumer experience that will determine their success. For, as Paco Underhill points out, (2000: 165) the phenomenon of consumption is above all an impulsive and dynamic practice. In this economy of experience, objects and services are no longer consumed, but rather sensations and the experience of those. Dominated by the same sphere of influence, the urban context itself is also modified. Mark Gottdiener (2001: 73) goes so far as to mention that the contemporary city itself has become a "symbolic space" [13] for the realization of capital by stimulating consumer desires and promoting sales.

Urban life, according to Graça (2010), is confused with the experience of consumption and becomes a commodity itself. Like the shopping center itself, the city - themed and overwhelmed by branding - also becomes an urban consumption scenario.

Urban Marketing develops. Cities and urban centers compete with each other to attract tourists. The historic centers are renewed, pedestrianized, "touristized" and their image is sold as if it were a consumer product.

THE ACTION OF CONSUMPTION IN THE TRANSFORMATION OF THE CONTEMPORARY CITY

According to David Mangin (2004: 25), the contemporary city resembles a franchised city (Ville franchisée) and undergoes a double transformation process. In the "dominial" sense - the weakening of its public territories - and in the "commercial" sense - the growing presence of large commercial complexes throughout its metropolitan areas. Consequently, its contemporary urban condition acquires three transversal conditions: - it is essential that urbanity is linked to consumption; - the large commercial groups are omnipresent in the urban structure and - the logic of Marketing permeates all facets of everyday life.

We are therefore in the presence of a city that is constantly changing and difficult to systematize. The new hubs of attractiveness stand out, with a range of services and employment (albeit temporary) boosted by shopping centers, which increasingly surround the compact nuclei of the canonical city.

According to Mangin (2004: 13) "these [Shopping Centers] are already commonly accepted (...) [as being] one of the new places of social mixing on a large scale."[14]

On the other hand, the contemporary urbanite, more than an inhabitant, is above all a user (city user), sometimes using the status of resident, sometimes as a visitor, and sometimes as a simple passerby.

Graça (2010: 45) states that the city is less seen as a common good and less free - "From bathrooms to parking, from access to monuments to urban tolls, their costs are progressively charged and increasingly imputed to their users. Urban services, which used to be the mission of local and central authorities, are also progressively being privatized (…) we are thus facing an authentic privatization of the city."[15]

Contaminated by consumption, the city itself will also reflect, according to Mangin (2004: 158), the hegemonic condition of franchising, since "rolled by large shopping centers, the commerce of the historic center does not subsist (…) except in the form of one or two pedestrian streets that (…) welcome the vanguard of franchised commerce, insignia or sub-brands of shopping centers in the peripheries."[16]

And as stated by Graça (2010: 47) "if the transformations gave consumption a leading role, they also highlighted the importance of the specific typology of the shopping center."[17] We are therefore faced with the consolidation of a phenomenon that some authors call the "mallification" of the contemporary city and which will consist of the functional reorganization of its flows according to consumption.

The peripheries have become less monofunctional, more populous, with more collective facilities and where many functions of the traditional urban centers are already represented. The centers (or significant places) are in turn transformed into spaces for consumption. In addition, we will see the transformation of peripheral commercial spaces into significant places, in which, according to Giandomenico Amendola (2006: 82), today we find more and more "fragments of a lost urbanity" [18].

The widespread dissemination of large commercial areas will thus change the face of the extensive European city itself, which today is no longer just a dormitory city, but also a place of commerce, rest and leisure; even becoming consumption one of the vectors of attractiveness of these peripheral urban areas that compete today, and even dominate, in the commercial panorama of many European cities (MOATI, 2001: 250).

"Throwing consumption out of the city, shopping centers will add to the traditional centripetal flows of commuting, new centrifugal flows that flow into their commercial centers"[19] (GRAÇA, 2010: 47).

According to Philippe Moati (2001: 250), commercial fabrics undergo two apparently opposite processes of "fragmentation" and "concentration"[20]. On the one hand, there is a fragmentation between the different poles of an archipelago of large shopping centers and areas resulting from commercial reorganization operations in compact cities, which are increasingly complementary in the center-periphery opposition and increasingly competitors with each other in inter-peripheral competition. On the other hand, we are witnessing both a (1) spatial concentration in terms of aggregation in clusters of commercial sets and typologies and (2) economic, in the domain of large financial groups, in the marketing and management of shopping centers and franchised distribution chains. The field of commercial activity is divided and shared, as well as urban mobility flows.

The shopping center - which, according to Graça (2010: 50), is "a privileged node in a network of collective spaces and generally in an excellent position vis-à-vis the various urban mobility nodes"[21] - is now part of one more point that René-Paul Desse (2001) calls urban "pilgrimage" [22], that is, the individual routes, experienced and optimized, associated with the activities of its agents. Adding a new node to the existing mobility networks, the shopping center will constitute a place that will allow access to an accumulation of functions, services or goods that were previously disseminated. In addition to this phenomenon, the development of an increasing phenomenon of rest and leisure offers, which makes the

shopping center a knot of equal importance to the place of residence or work in everyday life. The shopping center thus becomes a "clear statement" typology in the contemporary European city.
Finally, for Graça (2010: 50) "Well beyond simple containers, these spaces (…) share many characteristics with other collective spaces in the city. (…) Mimicry (…) more than simulacra attempts (…) is proof of a change of perspective that now identifies use with consumption and the city with privatization."[23]

CONCLUSION: WILL SHOPPING CENTERS CONSTITUTE NEW SIGNIFICANT SPACES IN THE CONTEMPORARY CITY?

To answer such a difficult question, we shall go back and carefully read a few key expert considerations. According to Graça (2010), "shopping centers are today one of the most striking elements of the contemporary urban landscape, as well as one of the most visible manifestations of today's consumer society. Present in the centers and on the outskirts, from the largest to the smallest European cities, these commercial formulas tend to be an unavoidable place of consumption activity for most of its urban users and therefore increasingly one of the key places in their daily lives"[24].
Thomas Sieverts (2005: 9) speaks to us of an "urbanized landscape or of a contemporary peaceful city that extends somewhere between the old historical nodes and the open field, between the places of living and the non-places of communication networks, between local economic circuits and networks dependent on the global market." [25]
But another key answer to this question is that advanced by Nuno Portas (2011: 187), in a recent reflection, about the transformations of the contemporary urban space - and specifically about the lack of legibility of the extensive urban and the importance of the System of Collective Spaces as basis of its structure.
Recalling the teachings of Kevin Lynch (1981), Bollnow (1963) and Balmond (2003) - on the importance of structure in ordering the occupation and functioning of the territory, by promoting the creation of a mental map that allows the understanding of the territory, its position in relation to the same as well as its appropriation - said Nuno Portas that "the base of the structure of the urbanized territory is its System of Collective Spaces (SEC)"[26]. Then he explained that this system is the network that connects the various elements of the agglomeration and that it was constituted by the set of spaces that the subject traverses and from which he reads and perceives the city.
While in the canonical city, public spaces tend to concentrate a set of meanings - since they simultaneously answer questions of form, function and symbolic value (sign) - in extensive urban areas the coincidence of these meanings is difficult to find, since the daily routines of its inhabitants pass through a set of spaces that respond to relatively recent models and programs and on which there has not yet been time for them to settle other valences and values. "Shopping centers, for example, have come to associate diversified uses with leisure and culture with commerce, and this has brought with them socialization practices. They have become meeting places, urban references and even centers that generate new centralities (Wall, 2008: 22, 27) such as Norteshopping, in Matosinhos, or Arrábida Shopping, in V.N. Gaia."[27] (Portas, 2011: 190)
Summing up, the hypothesis that raises the present investigation is that these artefacts could have a strategic importance in the (re)organization of the metropolitan territory, insofar as they could create a metropolitan network of synergistic collective spaces and support with the metropolitan network of public spaces, contributing and perhaps enhancing greater territorial cohesion, namely if they were able to create intense axes of urbanity. Therefore, what we want to know is the extent to which these objects configure new territorial corners, crossroads of mobility, leisure and consumption (Solà-Morales, 2004:

12), or create synergies with the System of Collective Spaces - SEC (Portas, 2011: 187), thus reinforcing the base of the structure of the urbanized territory.

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DISPLACING THE COMPLEXITY. CITIES AND THE APPALLING ROARING TWENTIES

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INTRODUCTION

Roaring 2020s? As far as the 21st century cities forms are concerned there are much more guessing about their structural patterns than facts. Unfortunately, the saddest of the guessing is the yet unsolved questioning about the disgraceful corona plague and how it affects cities. For people fascinated with the studies of cities – like the participants of this Conference – it is with dismal spirits that we start 2020 as a new year of endeavours. The roaring twenties of the last century receded to an ominous mayhem in the 2020s of today, transmuting them into the appalling twenties, just the opposite to 2019, which in the end proved a not-so-bad year for rambling on architecture-urbanism matters.

Last July 2019, in London, I presented a paper to a meeting organised by SPACE (**S**tudies of **P**lanning and **A**rchitecture **C**onsulting and **E**ducation) on the subject of City Planning and Urban Design. In the paper I discussed the role of spatial-behavioural interrelationships as sources of subsidies to use in city design strategies, adjusting them to best provide for societal contemporary mores. My research specific interest focusses on the investigation of city morphologies, especially when they are delineated by current days spatial phenomena, represented by the insertion of places upon the urban fabric. Ordinarily, such demonstrations would be attributed to what is increasingly known as urban Globality, a consequence of a new planetary reality, nothing but a mere stage in modern society's constant move towards an end-state of urbanised globalization. In this context urban researchers are called to register, perceive, become aware of novel facts, and try to interpret them towards a better understanding of the *contemporaneity* of the cities, particularly when attempting to detect the morphological features they depict. In other words, to recognise that spatial-behavioural relationships are able to potentially act as determinants of the form of the contemporary cities. The ensuing design usually points out to an elusive form – the form of an *Anthropocene City*. Probing on this new phenomenon heightened my infatuation with the research topic of the Anthropocene, here endorsed as a new line of inquiry.

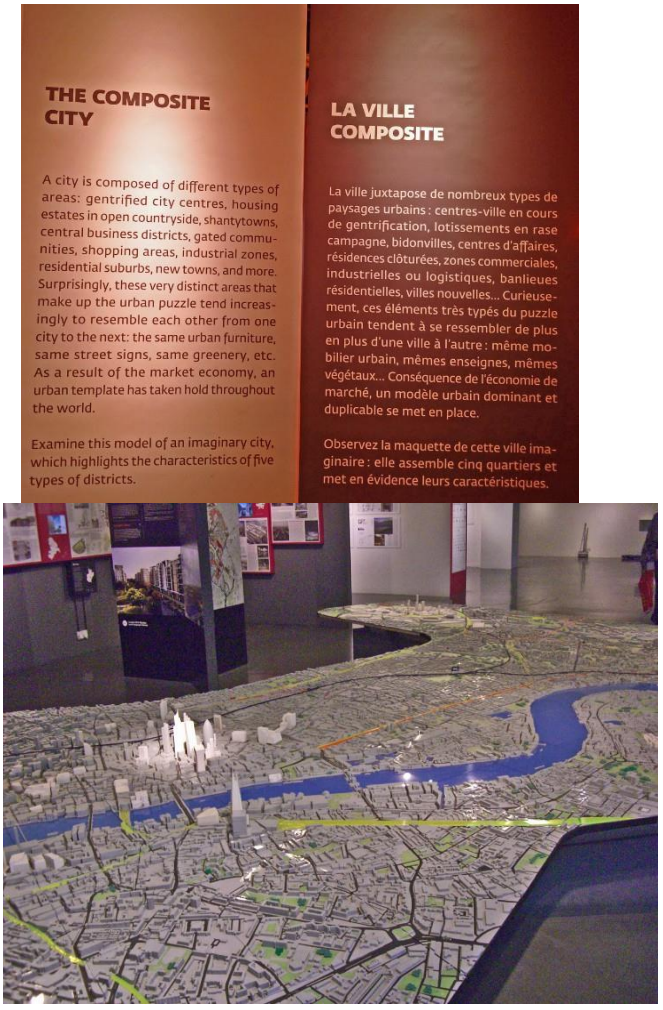
The expression Anthropocene, though referring to a concept yet still controversial, is attributable to Paul Crutzen (Nobel prize in 1995), who issued it in 2000. Basically, the concept implies that mankind might be on the verge of an Anthropocene mutation, with the expression Anthropocene referring to Earth's most recent geological cycle, a period mostly customized by human influences (anthropogenic influences). An overwhelming global contingence for the phenomenon is now under way, signalling the entrance of life on Earth into a cycle conceived as the *Age of Man*. In this view, atmospheric, geological, hydrological, biospherical and other Earth-system processes have been significantly altered by humans.

METHODOLOGICAL FRAMEWORK

In Architecture-Urbanism the structural description of an Anthropocene city can be drawn from diverse methodological backgrounds. A basic theoretical one – the morphological approach, endorsed in this paper – comes from a visit to an expo presenting 'The composite city', held at the Exhibition Museum London (2017). There, visitors become familiar with notions that a contemporary city is composed of a patchwork of gentrified city centres, housing estates, shantytowns, central business districts, gated communities, shopping areas, industrial zones, and new places.

By places, the exhibitors probably coincided with my own understanding of the concept, "(. . .a created environmental form, imbued with symbolic significance for its users" (CASTELLO 2005: 350).

The Exhibition, the visit to London, and the subsequent afterthoughts, seemed sufficient to induce me to reflect favourably about London Design and Planning, and to support the permanence of the actions therein involved. Environmental maintenance has surely contributed heavily to guaranteeing the city to be kept included within the most important cities in the world.



Figures 1a and 1b - London's progress discussed in exhibitions. 'The composite city'; Exhibition Museum, and 'London's Towns' New London Architecture
www.newlondonarchitacture.org

In addition to the morphological background, sociological and psychological insights are also involved in the methodological framework employed here and contributed with useful enlightenments, since the overall idea of '*place'* (typically at the root of the insights) is deeply ingrained in the whole of the research *rationale* (in other words, all designing and planning reflections are elaborated under the encouragement of a 'place-friendly' mode). It is useful to remember that in the end, like most research work in our Architecture-Urbanism area, the ultimate methodological procedure ends up in learning from lessons taken from empirical grounds.

This will be my fourth approach examining the structural complexities of contemporary cities, this time trying to extract the informational elements directly from the perception of urban realities, rather than from a pre-formatted exhibition as I did after the impressive London Exhibition I attended in 2017 (and that influenced me so much).

Therefore, which components should be included in the discussions about city and complexity as intended in this Conference?

What follows is a gathering of ideas whose organization I have set in two groups:

- ideas that can lead to advances in the foundations of place theory, keeping me faithful to what constitutes my fundamental lines of research; and
- ideas that can bring about pragmatic examples of urban places currently produced in contemporary cities, whose creations I have been acknowledging through environmental perception exercise when visiting them.

Ultimately, they will simply be the ideas of an urban researcher exercising his abilities for fine tuning the readings of a city's morphological compositions. In this endeavour it is also included a reconnaissance of an elusive form for the city; and an incipient outline for a conceptual diagram pointing to a picture of multiple polarisations.

1. The first group will bring discussions about the theoretical foundations set out by researchers at different times and origins in urbanism history. In this context the methodology will be that of a bibliographical review, in which classic concepts of a variety of authors is remembered. This initial scrutiny on the classical bibliography of place will cover authors from at least the last 100 years of the literature. Among them:
    - Ascher (developing the concept of the so-called *métapolis* enlarging the studies debating the morphological features of a city-region, characteristic of contemporary urban agglomerations);
    - Banham (developing the city-region character of the city of Los Angeles, an emerging paradigm in the morphology of contemporary cities);
    - Canter (setting the initial explorations in environmental psychology);
    - Carmona-Hambleton-Kolb (the three of them decisively deepening the concept of place);
    - Christaller (developer of the legendary 'central place theory', responsible for determining the foundational studies recognizing the importance of centrality in city's morphology);
    - Frank and Stevens (alerting about what to do with 'loose spaces' in cities);
    - Garreau (establishing edge cities);
    - Howard (creator of the definitive urban scheme known as garden city);
    - Jacobs (for sowing the seeds of what is now called urbanity);
    - Lynch (for the introduction of a universe of urban imageability);

- Rogers and Lerner (for developing on ‘urban acupuncture’);
- Rowe (exposing the essential functions of collage);
- Shane (forwarding a definitive depiction of urban typologies);
- Sudjic (for the fundamental interpretation of the cities' lexicon).

2. The second group will contemplate the incidence of some innovative ideas linked to depictions of the contemporaneity of cities, associated with place theory. Among them, especially those that play an effective role in attributing the perception of modernity to these cities, standing out as what literature describes under the name of ‘invented places' (e.g., CARMONA et al.). The invention and insertion of places in the configuration of a city’s morphology is ascribed to the execution of urban policies known as 'placemaking', sometimes linked to strategies classified as 'place marketing', as I denominated them in my book (CASTELLO 2010). 'Created' places are now legitimate components of urban repertoires and have been commonly employed to characterise the contemporaneity stage achieved by a given city. Moreover, the simple presence of created places would be enough to attest the insertion of one symbolic representation of everyday phenomena intrinsic to that city. This is so because symbols of the ‘everyday’ are said to 'materialize' the typical manifestations of the 'everyday life' of actual residents (DE CERTEAU 1985).

In the activities within my *research group in environmental perception and urban design*, I have been contemplating the topic of 'place' through varied approaches, such as ministering classes, writing articles, giving lectures, and even publishing books. In the present stage of my research I am following up the observation of some interesting innovative initiatives I have been witnessing while investigating contemporary urban environments around the world.

Ultimately the group comprises innovations still mentioned under their incipient denominations, such as 'loose space' (FRANK & STEVENS 2007) or 'urbanism without effort' (WOLFE 2019), or even entirely experimental, focusing on the new phenomena I tentatively call *‘placeLeaks’* (THWAITES et al., 2013; CASTELLO 2011). This particular phenomenon calls my interest very closely, though it is yet less investigated. The phenomenon arises when one registers the perception of the manifestations of *contemporaneity* in cities. This perception refers to facts that can become fundamental in place theory, because they help to explore the innate ability of a consolidated 'place' to generate, in its own interfaces, the creation of *other* places: new places created out of the conviviality of people. In current times – times when many communications occur in the instant format of *streaming media* – it would not be surprising that stimuli eventually emitted by the energy of a place could somehow ‘leak’ into its adjacent spaces, thus opening up opportunities for the creation of a new 'place', hence enriching the city’s *repertoire* of convivial spaces.

So, it is within this reasoning that it becomes possible to conjecture that 'radiating' the energy from a place to its interface, chances may arise that a new place may be generated – that is, the accomplishment of one *strategy* can bring out an opportunity to materialize a *tactic* – such as augmenting the repertoire of urban places in that city (in accordance with what the philosopher Michel de Certeau taught us some time ago).

RECENT PRODUCTION

Recalling my presentation of papers in Conferences in the last couple of years I found curious coincidences, some of them deserving a second regard, whereas most of them touching the topic of *placeLeaks*.

I am reviewing them in order to try to highlight the possible convergence of ideas they eventually share. The papers are the following:

(i) REVENGE OF THE FRACTURED METROPOLIS – presented at the 52nd International Conference of the Architectural Science Association, 2018, Melbourne. Published in PROCEEDINGS ASA 2018 Engaging Architectural Science: Meeting the Challenges of Higher Density. Melbourne, Australia: The Architectural Science Association and RMIT University, 2018. P. 779-786.

(ii) RELENTLESS RESILIENCE – presented at the 4th International Conference on Changing Cities. Spatial, Design, Landscape & Socio-economic Dimensions, held in Crete, Greece, June 2019. Chania, Greece, University of Thessaly. Proceedings.

(iii) THE ELUSIVE FORM OF CITIES – presented at the SPACE International Conference, City Planning and Urban Design, held in London, United Kingdom July 2019. www.spacestudies.co.uk E-Proceedings.

(iv) DISPLACING THE COMPLEXITY – presented at the International Conference The City and Complexity – Life, Design and Commerce in the Built Environment, planned to be held in London in June 2020, but substituted by an on-line event in view of the coronavirus crisis.

Please accompany my presentation at this latter event in:
https://www.youtube.com/watch?v=PTEbbNc0rcU&list=PL6zYdPl0DZ2p9krzgBmKbIIGbwrKqxjAo&index=19

Finally, this present text brings the initial draft of a revised version I am preparing to send to the organizers of 'The City and Complexity Conference, London 2020'. This initial revision is limited to 3000 words, so it seems likely that I will need to return to it on a later occasion.

The following comes from reflections taken upon excerpts from that presentation.

INTROSPECTIONS

Initially it is convenient to remember that introspections comprise reflections that focus the *essence* of a subject. And introspections can be acknowledged as being extracted from *perceived* city-life patterns. Conceptually, this paper favours introspective aspects more akin to urban *resilience* circumstances. The involvement of the resilience factor is rather simple: it facilitates to incorporate the planning suggestions given by communal decision-makers, often linked to methodological solutions based in local practices (such as, for example, to alert the planners that there are options for redeveloping depleted intra-urban territories, rather than allowing them to outspread urbanization continuing to invade the natural territory); and to encourage them to identify collective urban public spaces - new and/or resilient.

In other words, to guarantee environmental sustainability standards, while caring that they are accompanied by increases in a balanced supply of liveable public spaces.

Therefore, one strategy contemplated in the text aims at curtailing urbanisation, preventing its extension further away from its actual limits, encouraging a tactic to achieve sustainability. As well as to increase the offer of new liveable public places in the cities. But, notwithstanding, signalling them as alternative solutions linked to the perception of ordinary citizens.

This concern is said to be focussed on ecological agendas – that is, associated with physical-environmental manifestations. It is the understanding of this present text, however, that it is already time for these agendas to include in their scope – in the scope of so-called ' environmental problems ' – concerns about the *psychological-environmental changes*, changes in the subjective field, changes that entail an unusual psychological bias in environmental agendas, changes with implications also responsible for alterations in the *subjective quality of life* of citizens. Changes that may cause perilous

loss of identity references people have in relation to the environments they are familiar with, whereas sustaining certain elements responsible for keeping the *meanings* ascribed to an urban space – hence acting as a strategic goal in the pursuit of environmental sustainability.
To engender a sustainability for subjectivity (CASTELLO 2003).
Thus, in the pursuit of sustainable urbanism, it is not enough to guarantee the permanence of the natural and constructed elements: it seems essential to keep also the psychological environment developed between human beings and urban elements, through the exercise of their Everyday existential practices – and this psychological environment finds its best representation in the form of urban *places,* where *urbanity* affairs are generously developed among people.
On the other hand, we are billions of people in finite urban environments experiencing unending growth, which poses crucial terms to city planning and urban design. All in all, there is a simultaneous need to prevent excesses on covering natural soil by urban use; and to provide for an increment in the number of urban spaces designed to stimulate social interaction of billions of city dwellers.
Therein seems to reside two specific urban-architectural challenges for Anthropocene cities: we are standing at the threshold of a positive curtailment of urban sprawl; and we are experiencing the creation of new inventive places of collective social interaction.
In the Australian paper (‘Revenge of…”), on the other hand, it called my attention a recurring perception that initially intrigued me when I was observing the depictions of two of the legendary 21st century global metropolises, London in Europe, and Los Angeles in North America. The descriptions of these two cities call for a more attentive look since they represent paradigmatic instances of the global contemporaneity of metropolises. They share similar embryonic constitution in their very origins: they were both originated from an ‘assemblage’ of native small villages (Figures 2 and 3). In fact, as once noticed by an architectural critic (Anthony Vidler 2000, in BANHAM 2009/1971), the two cities may be said to share common grounds in their structuring, each configuring a conglomeration of small villages spreading out in endless tracts of residential units. This general view of their comparison will thus evoke the delineation of a subtle diagram for Anthropocene layouts, that introduces an urban design composed by multiple centralities. In other words, a diagram essentially made by *places* (Figure 4).

Figure 2 – reading of London's fabric (by Abercrombie

Figure 3 – reading of Los Angeles' counties

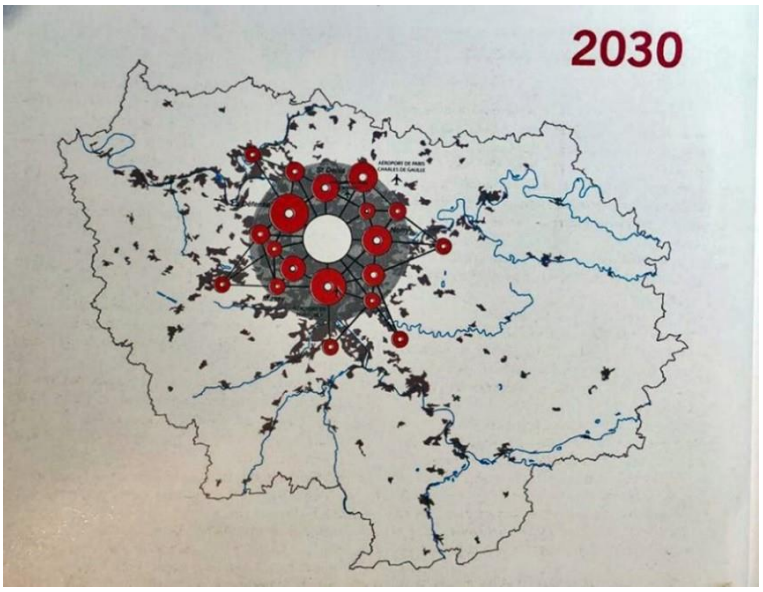


Figure 4 – Paris is also speculating about the morphology of the planetary metropolis. Source: exhibition Le grand Paris.

All in all, *spatial-behavioural interrelationships* are the real influencers of today's elusive city forms of metropolises (as examined in the paper 'The Elusive Form…' presented in London 2019). In addition, in a more recent presentation (London 2020), I have tried to simultaneously revolve around the idea of 'Replacing the Complexities', i.e., I aim to transport Anthropocene complexities to other proxy *places* placed in their neighbouring environmental areas. The anticipated resulting outcome will display a *multi-centric web*, replicating London former villages and Los Angeles actual counties, spreading spatially throughout nearby created places, altogether absorbing resilient iconic elements. One suitable example of this inclusion is the new *place* erected in Kings Cross-St.Pancras, London (Figure 5). This sort of insertion is increasingly found in contemporary global metropolises, as for example, in the new development of Hudson Yards in New York (Figure 6).

Figure 5- Resilience in action. London St. Pancras. Photo: L. Castello

Figure 6 – resilience in action. New York, Hudson Heights. Photo: L. Welter

ADJUSTING TENDENCIES. NEW LINES OF RESEARCH, NEW RESEARCHERS

The morphological manifestation of the new phenomena involving contemporary cities – and their manifestation of contemporaneity – has been fascinating scholars of many areas, producing substantial advancements in the fields of Architecture-Urbanism, Urban Geography and Environmental Psychology. The examples are numerous and varied and I will mention only two of them.

An extensive examination of the subject is attributed to Professors Alessandro Balducci and Mario Paris (2019), at the *Politecnico di Milano*, Italy. In their work, they expose with convincing arguments the likely delineation of a contemporary city-region, opening speculative thinking about basic shapes for the Anthropocene city, establishing new and intriguing lines of research. In the same vein, new challenges are already re-defining the inquiries of the urban academic community.

If (with luck) cities manage to survive to the corona virus, Russians are already luring scholars towards studying the Post-Anthropocene! "We lived in an age where new technologies develop faster than our cultural or ideological capacity to understand what they mean. Hence is the urgency to map new territories and conditions formed by AI and automation (. . .). Assembly lines, data centers, automated ports, and warehouses are spaces that cater to the machine and shift away from the human", says Liam Young who has edited '*Machine Landscapes: Architecture of the Post-Anthropocene*' (STRELKA MAG 2020). It seems that a tendency of the 2020s pandemic will be to overturn the ancient utopian goal of gathering people in places towards a dystopian Post-Anthropocene mode of *displacing* people.

CONCLUSION

For an excessively long period of time city design diagrams have been linked to intelligent schemes, like for example those issued by Howard or Shane. Alas, this cannot be the case any longer. *Contemporaneity* keeps posing massive complexities so as to demand more thorough efforts to examine how to bring forward *new* models – new schemes. I am actually trying to move towards this direction. And, rather challenging, trying to venture – to tentatively theorise – about the most appropriate *tendencies* reputed as suitable for representing the *form* of the Anthropocene city.

As a whole, there are at least two highlights that can be definitely selected among the tendencies.

- That cities have quality public spaces (which I call *places* in my studies), that is, spaces that offer opportunities to enjoy qualified urban life experiences.
- And that this quality of life be carried out within a paradigm of *sustainability* of the urbanized environment.

This is what my recent works have been trying to strengthen. In sum, reviewing what has been processed so far, two major findings involving LA and LON are indicative:

that the presence of a conceptual multiple polarisation diagram, pointing out to an elusive form of the city, can be outlined, and

that it comes accompanied by a process of the distribution and designing of new territorial arrangements in existing *placeLeaks*.

Hence, the major concerns of this text necessarily involve both, urban development, and environmental sustainability, whereas also highlighting, as a precondition for development, the influence of an important psychological bias, a perception quite often missing in these contexts. This is the sort of perception that will allow to include within the overall reasonings the contributions of the resilience factor, one of the most fertile phenomena to ponder in the matters of city contemporaneity.

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LIGHTS, CAMERA, HOUSING: A UNIVERSITY COURSE ANALYZING HOUSING NORMS IN MOVIES AND TV

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INTRODUCTION

A variety of housing options exist, and there are advantages and disadvantages to each of these housing options…from rented micro apartments to luxurious mansions owned by the occupants, and everything in between. As described in Housing Norms Theory, Americans prefer to own a single-family detached house as opposed to renting an apartment[1] But how are these housing norms created, communicated and reflected in our society?

This paper explores these issues through an advanced-level course, PMGT 400 *Housing and Society*, completed by Residential Property Management (RPM) students at Ball State University. It provides an overview for teaching this type of course, so that others in academic programs related to housing (such as architecture, interior design, planning, real estate) may replicate such a course in their own university curricula.

Housing norms and the rental apartment stigma

Owning a house is a long-held cultural norm…the "American Dream." Homeownership is often equated with financial security, status, social class, stability, commitment, and good citizenship.[2] In its 2020 first quarter report, the U.S. Census Bureau indicated 65.3% of Americans are homeowners.[3] On the other hand, renting an apartment also has advantages.[4] Renters need less money upfront and can move more easily than someone tied down by a mortgage. Property management staff maintain the equipment and grounds, so renters save time and money. Access to amenities such as a swimming pool, fitness room, clubhouse, and resident events add further benefits to apartment living. Comprising about one-third of the U.S. population, data reported by the Pew Research Center indicate there are now more renters than at any time in the past fifty years.[5]

However, such statistics should not be interpreted to suggest that America is turning into a nation of renters. While a growing number of Millennials (65%) are currently renting, they still want to become homeowners. This rite of passage has simply been delayed by education, student loans, credit card debt, marrying later, and having children later.[6] Even with the ongoing increase in apartment demand, there is still a stigma attached to this housing option. Perceptions of renters shared by respondents in a recent Apartment List study further reinforce the rental apartment stigma, with respondents sharing these phrases as descriptions of renters: *second-class citizen * transient * less successful * cannot afford a house * waste money when they should build equity * not invested in their location * lack commitment and responsibility*.[7]

RESIDENTIAL PROPERTY MANAGEMENT AT BALL STATE UNIVERSITY

Ball State University (Muncie, Indiana, USA) boasts one of the few Residential Property Management (RPM) academic programs in the nation.[8] Recently celebrating its twentieth anniversary, the Ball State RPM Program offers a major, minor, and certificate program.[9] Housed in the Miller College of Business, the curriculum includes traditional business courses, along with specific courses in housing, real estate, and property management; the curriculum also includes a required internship. The RPM Program is supported by an advisory board of property management professionals from throughout the U.S.[10] Students in the program are in high demand for internships and permanent positions. They typically start out in onsite positions as leasing consultants, marketing/leasing managers, resident services coordinators, or assistant managers, and then move up quickly to positions as property managers/community directors. After gaining onsite experience, some move up the apartment industry career ladder to become regional property managers, corporate trainers, marketing specialists, asset managers, developers, etc. Others choose to enter related professions such as real estate sales or commercial property management.

PMGT 400 Housing and Society

PMGT 400 *Housing and Society* is a required senior-level project-based course in the RPM curriculum and serves as these students' Tier 3 immersive learning course on the University Core Curriculum. According to the course description, the content includes…

Exploration of the relationship between housing norms and public policy, mass media, fine/applied art, literature, entertainment, education, and personal relationships, from an individual and societal perspective. Emphasizes how these factors reflect and influence housing beliefs, decisions, and aspirations.[11]

Student learning objectives guide the activities of the class and consist of the following:

- Describe personal housing beliefs, decisions, and aspirations.
- Identify national housing characteristics and societal housing norms.
- Discuss factors that influence housing beliefs and decisions.
- Evaluate the ways in which housing norms are communicated and reflected.
- Use appropriate research methodology to propose and conduct a study assessing the communication and/or reflection of housing norms.
- Develop recommendations based on research results.
- Present research findings in a formal presentation
- Prepare a research abstract using symposium/conference submission guidelines.

Each semester the course is offered (typically once a year in Spring semester), a different factor is explored. Four previous iterations of the course included 1) evaluation of and recommendations for revisions to the Rent vs. Buy section of the Indiana Apartment Association website, 2) evaluations of children's housing-related books, with recommendations for area libraries to add more apartment-friendly children's books to their collections, 3) evaluations of apartment-related articles in online news, with more positive apartment-related articles written by the class for the housing guide of the campus newspaper, and 4) exploration of apartment images in art, then hosting an apartment drawing/coloring contest for a local elementary school.

Spring 2020: Housing norms in movies and TV shows

In Spring 2020, the class set out to explore the relationship between housing norms and movies/TV shows. The inspiration for this particular topic came from several books, especially *The Apartment Plot*,

a film studies textbook written by Dr. Pamela Robertson Wojcik, a film studies scholar at the University of Notre Dame in nearby South Bend, Indiana.[12] This became the textbook for the course; see other related resources in the Bibliography.

The power of movies and TV

Interaction with media is one of the primary ways we learn about the world. This knowledge, whether or not it is accurate, impacts our attitudes and behavior. This is known as a "cognitive approach" to understanding the impact of media…the mental reality that becomes the framework for creating our attitudes and behaviors.[13]

Movies and TV shows are some of the most powerful media sources, with these examples supporting the power of film:[14]

- Deer hunting was cut in half after the release of Bambi (1942)
- Beach tourism declined after the release of Jaws (1975)
- Fight clubs sprang up across the US and the world after the release of Fight Club (1999)
- Following the negative view of McDonald's portion size in Super Size Me (2004), the fast food chain removed this menu option

It is also concerning that movie and TV viewing is increasing, especially among children. A 2010 report by the Kaiser Family Foundation indicated children's viewing habits have increased to more than seven hours a day.[15] As a result, their "knowledge" of the world and resulting attitudes/behaviors are increasingly being shaped by what they see in movies and TV shows.

Students' housing beliefs, decisions, and aspirations

To satisfy the first objective of the course, and before focusing on the major content of the course, students created and shared presentations about their own housing history and future plans…where they have lived (location, structure type, tenure status), and who else lived with them. The vast majority of students grew up in a traditional family setting, living in an owned, single-family detached house until they reached college, whereby they moved into university residence halls as freshmen, then rented an off-campus house or apartment for the remainder of college. Each semester there are a few students who have lived in a rented apartment as a child for a brief period of time while the family house was being built or while their parents were divorcing. However, there are also students in the class who have never lived in an apartment or any type of rental housing, even during college. This is especially interesting given these students are preparing for careers in the apartment/property management industry. In addition, the 100+ total students enrolled in the course in the five semesters the course has been taught plan to remain in a rental apartment for only a brief time (if at all) after college, with aspirations to buy a house as soon as possible. Even RPM students succumb to housing norms of single-family homeownership!

Project-based immersive learning course

Following the Personal Housing Journey assignment, students learned more about housing statistics, housing norms, and the various ways these norms can be created, communicated, and reflected in our society. The remainder of the course was student-led, whereby students were organized into groups to carry out the course objectives. In Spring 2020, with the focus on housing norms in movies and TV shows, student groups included the following:

- The Scholars became our content experts, digging deep into the textbook and preparing their own independent research projects related to the interface of housing and movies/TV shows.

- The Movie Tech team was tasked with locating and showing relevant movies and TV shows to the class.
- The Event Planners arranged a Q&A session with the author of our textbook, as well as made plans for the final showcase where students would share what had been accomplished during the semester.
- For more information about student-led immersive learning at Ball State University, see https://www.bsu.edu/about/administrativeoffices/immersive-learning.

Movies and TV shows viewed and analyzed

A total of 13 movies were viewed by students in the class; about half were viewed by the entire class and the other half were viewed by smaller groups of students. In addition, students watched one to four episodes of a total of 12 different TV shows, as an entire class or in smaller groups. The total list of movies and TV shows watched can be found in Table 1 and Table 2, respectively.

Movies
A Home of Our Own (1991)
A Raisin in the Sun (1961)
Breakfast at Tiffany's (1961)
Cash Only (2015)
House of Sand and Fog (2003)
Rear Window (1954)
Rosemary's Baby (1968)
The Apartment (1960)
The Landlord (1970)
The Super (1991)
The War of the Roses (1989)
Tower Heist (2011)
Under the Yum Yum Tree (1963)

Table 1: Movies viewed/analyzed

TV Shows	**Episode(s) Viewed**
All in the Family	*The Jeffersons Move Up* (aired January 11, 1975)
Big Bang Theory	(student's choice)
Brooklyn Nine-Nine	*The Apartment* (aired February 25, 2014)
Everybody Hates Chris	(student's choice)
Frasier	(student's choice)
Friends	(student's choice)
How I Met Your Mother	*Moving Day* (aired March 19, 2007)
Mad About You	(student's choice)
Seinfeld	(student's choice)
The Jeffersons	*Movin' On Down* (November 1, 1975)
Three's Company	(student's choice)
Will & Grace	*Pilot – Love and Marriage* (aired September 21, 1998), *A New Lease on Life* (aired September 28, 1998), *Head Case* (aired October 5, 1998), *Between a Rock and Harlin's Place* (aired October 12, 1998)

Table 2: TV shows viewed/analyzed

As students reviewed the movies and TV shows, they paid particular attention to…

- How the housing unit was portrayed.

- How the neighborhood was portrayed.
- How the primary occupants were portrayed.
- How their friends/neighbors were portrayed.
- How housing industry professionals were portrayed.

The overwhelming majority of movies and TV shows reinforced the housing norms of a preference for ownership of a single-family detached house over a rented apartment. Property management professionals were also portrayed negatively. Examples of students' reactions to the movies and TV shows include the following:

- *Rear Window* (1954) – "definitely reinforces the lack of privacy in apartments."
- *Breakfast at Tiffany's* (1961) – "Holly's lack of furniture indicates this is a temporary space for her, that an apartment isn't a real "home"."
- *Under the Yum Yum Tree* (1963) – "Hogan breaks all of the rules in property management...violates Fair Housing laws by renting only to women, spies on residents, enters occupied apartments whenever he wants, etc. I'm embarrassed that a landlord would be portrayed this way."
- *Rosemary's Baby* (1968) – "No one would want to live in an apartment after seeing this movie. The dark lighting, secret passages, nosy neighbors, and death of a previous resident make apartment living seem creepy."
- *The War of the Roses* (1989) – "This was a perfect movie for showing the power of housing norms. The apartment makes them seem lower class; having a house elevates their social status but then destroys their marriage."
- *Will & Grace* (1998) – "It was nice to see apartments/renting portrayed positively…that roommates care for each other and that apartments can be personalized."
- *How I Met Your Mother* (2007) – "There are four locks on the apartment door, makes you think apartments aren't safe."

Q&A with textbook author

The class hosted a question and answer session with textbook author Dr. Pamela Robertson Wojcik. This discussion was originally intended as a guest lecture in the classroom; however, due to the COVID-19 pandemic it was changed to an online asynchronous discussion held over a three-week period. Students wanted to know about Dr. Wojcik's personal perception of and professional interest in apartments, the process of writing *The Apartment Plo*t, and her favorite apartment-related movies and TV shows.

One of the final questions asked of Dr. Wojcik was…*We know that movies and TV shows can have a powerful effect on people. How do we encourage screenwriters and directors to portray renting, apartments, apartment residents, and apartment staff in a more positive way in movies and TV shows?* Instead of responding to that question per se, Dr. Wojcik indicated that is not the job of filmmakers (to portray apartments/residents/staff positively) …that it is the job of apartment industry professionals to BE BETTER. Her response initially agitated the students. However, they then understood that they have an opportunity, a responsibility as future apartment industry leaders, to be the change that is needed in the apartment industry.

Showcasing the course through Facebook

Although the original plan was to showcase the students' work through a live event on the Ball State University campus during the last class period of the semester, those plans changed as a result of the

pandemic. Being unable to host an in-person event, the students instead showcased their work over a three-week period via Facebook. See the **Lights, Camera, Housing** Facebook page at https://www.facebook.com/BallStateUniversityPMGT400.

The Facebook page identified the premise of the class…to analyze movies and TV shows through the lens of housing norms. The page identified the movies and TV shows watched by the students, and invited followers to engage with the page. Students also used the Facebook page to share fun facts about various housing-related shows and to showcase the author of the course textbook.

Students in the Scholars group conducted mini research projects on the intersection of housing and movies/TV shows. These projects were also showcased on the Facebook page and included these topics:

- *To what extent are apartments and renting featured on HGTV?*
- *How are apartments portrayed in movies and TV shows?*
- *The portrayal of apartment industry staff in film and TV*
- *How houses and homeownership are glamorized in movies and TV shows*
- *Set design: Bringing houses and apartments to reality in movies and TV shows*

Although it was not the original plan to showcase the student work in this way, the Facebook page was a success, resulting in a total of over 250 followers from a variety of locations during the three-week showcase event, and nearly 400 viewers on some days.

CONCLUSION

Student learning outcomes

Immersive learning classes are meant to not only improve students' content knowledge, but to also provide students with transferable skills they can take with them throughout their personal and professional lives. Students in the *Housing and Society* class not only learned about housing norms through a non-traditional learning format – watching movies and TV shows; they also learned how to use social media to showcase what they learned. In addition, working independently and in groups, students reported learning additional skills like flexibility, patience, teamwork, leadership, communication, and time management that will serve them well throughout their lives.

Course plans for the future

At the conclusion of the semester, faculty and students evaluated course activities and made recommendations for future offerings of the course. All course objectives were accomplished, and both students and faculty considered the semester a success. Course content being considered for the future includes an interface of housing norms and music, or an interface of housing norms and what is being taught in public schools, as music and education are both listed as factors in the course description but have never been explored in the five previous offerings of the course. Another recommendation for a future offering of the course is to revisit the interface of housing norms and movies/TV shows. Specific recommendations include:

- Show more current movies instead of relying primarily on those listed in the textbook.
- Have students do more background research on the power of film.
- Provide more time to discuss movies and TV shows.
- Showcase work using Facebook and a live event; perhaps even host a film festival.
- Give students even more responsibility/control.

Research needed on apartment perceptions and apartment-related films

The work of students in the *Housing and Society* class only skims the surface for the work that needs to be accomplished in this area of study. Further research is needed to analyze reactions to housing-related films to determine the impact on a variety of audiences, including both youth and adults, and both housing consumers and housing decision-makers.

ACKNOWLEDGEMENT

The participation of Dr. Carla Earhart in the Architecture, Media, Politics, Society conference was supported by the International Ambassador Fellowship Award from the Housing Education and Research Association.

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REINVETING SPACES OF ENCOUNTER IN THE CITY

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INTRODUCTION

Reinventing spaces of encounter in the city today, appears to be a utopian subject, as the COVID-19 pandemic challenges us to address a series of diverse issues especially because a quick return to a carefree world of unfettered movement and social everyday life seems difficult to believe. However, a series of factors have made the specific subject sound utopian even before the pandemic. In an international insecure and unstable social environment, we will attempt to reevaluate existing and invent new urban agents and factors towards a viable and sustainable urban design approach. We will explore these factors to argue that there will be a further deprivation of vital social public spaces in the near future and suggest that collaboration between different active agents and disciplines could enhance the vital role of high streets, mixed uses streets and complexes as the rigid cores of communities where social encounters could flourish.

Brave new world

According to the political scientist Robert Putnam, Western societies experience low levels of social cohesion and have less trust in institutions and leaders than 30 years ago[1].For a long period of time, before the arrival of Covid-19, fear was used as a substitute for trust. A post truth realm is established by spreading fake and misrepresented news, in which the act of making sense is permanently balked and communication prevails upon thinking. At the same time, “Cities we live in are closed in ways that mirror the transition period of the tech-world, moving from an open to a closed condition”[2], as Richard Sennet points out. In this closed condition in which there is a rigid separation between the public and the private, a new mentality emerges. A mentality of passive participation characterized by a lack of concern for the commons, with citizens abrogating any political or civic responsibility and escaping to pure solipsism. During the last decades marked with uncertainty, instability, and a head spinning rapid pace, a burnout society[3] is revealed with limited social orientation, framing everything in economic terms. At this frenetic pace, social media offer connectivity to a digital reflection of the world, consisted of the tribes we create and choose to interact with. Once safely connected to that immersive digital world of “endless” possibilities, people start to fear physical exposure in public spaces, avoid social encounters, and feel safe only inside a private comfort zone territory. From that private territory, we can get glimpses of the world, while digital platforms and apps transform our everyday lives to data and map tangible and intangible elements of the city, redefining and restructuring at the same time urban content.

Provocative thinkers of our times have reached a turning point in which a deceleration, a slowdown is considered the only way to reflect on life, society and human nature. Different approaches suggest a deceleration from an ever increasingly pervasive regime built around the logic of speed[4] and others focus on use of technology, digital platforms and social media, like the "World unplugged"[5] study which showcased a process of enabling young people to reflect on their relation to technology, That deceleration, came, as slowbalisation[6], a condition in which the flow of people, trade and capital is slowed, due to the pandemic and revealed frightening but at the same time promising perspectives of the "brave new world" in which we will be invited to live after the crisis.

The pandemic allowed the enforcement of a series of authoritarian policies, a panopticon type of surveillance of communications, social behavior and contacts, an overall control of an enormous amount of personal and biological data, all imposed as the only way to protect ourselves and preserve lives. In short, we will argue, it is fear that legitimates state regulation and makes people follow the rules.

In addition to that, e-commerce appears to conquer the market, growing even more rapidly than before and a considerable increase of people working from home is recorded. Distance learning has quickly become a trend, where social interaction fostering critical analysis and engagement can be effectively replaced by mere information transmission. On top of that, several digital platforms and protocols, offer VR and AR experiences of cultural venues, events and remote heritage sites, all over the world. All of the above, foretell a future life mainly lived indoors, self-enclosed in the limits of our house if not in the limits of our own bed as Beatrice Colomina warn us [7].

Finally, the shadow of an economic, social and moral crisis in the near future is an opportunity for the ones in charge to exploit social and political resources, unexploited until now, to retain and prolong the achieved high levels of control and manipulation of human behavior while they are dealing with the unavoidable consequences of this crisis with immediate effects to our societies and cities. A widening gap between a safe middle class and an exposed working class[8], a huge rise in homeless people and people relying on food banks, a big increase in unemployment's levels, and zero hours contracts' numbers, will be few of the consequences of this crisis. An even deeper housing crisis than the one we are facing today, due to gentrification, will occur, imposing the extended movement of active citizens and low-income key workers from their urban neighborhoods to the outskirts of the cities. As Jane Jacobs clearly argues "You cannot rely on bringing people downtown you have to put them there"[9] Taking all the above in consideration, we foresee a further deprivation of vital social public spaces in the near future. Public spaces, without dividends, diversity, physical and social encounters and a sidewalk life culture or activity present, will be transformed into touristic attractions theater sets of the vivid places of the past.

Social capital during the pandemic

On the other hand, during the lockdown "Our worlds have shrunk, and our street has become our world"[10]. A rise of social and personal responsibility is evident. New communities are formed from people not knowing each other via digital platforms, humanizing the use of technology in the cities. Platforms and community intranets enhance social cohesion connectivity. Numerous initiatives attempt to support the vulnerable, to establish social solidarity to the NHS, and to the key workers keeping the city moving. An unprecedented appreciation of the invaluable contribution of low-income working-class manual labor people and immigrants to the community's welfare, is present. Physical distancing, which is what we are asked to practice, does not necessarily lead to social distancing during the

lockdown, and an abundance of altruism is around. Hidden local identities emerge and map the cities in alternative ways.
Maintaining this community spirit, as a legacy of the pandemic when we emerge from the state we are in today, would generate and enhance collective memory and intelligence, that could eventually provide the infrastructure for place making, the plinth of social encounters.
Social infrastructure of people talking to each other, working, participating and acting together exchanging experiences and stories, may transform people to active responsible citizens "Eventually it could be that these small localities become more powerful thanks to the people who live in them, and especially the people who are willing to put their effort into improving things locally."[11] as former chief design officer for Helsinki Anne Sternos argues.

Self-sufficiency and circular economy in "walkable cities"

Another significant outcome of the lockdown during the pandemic is, that self-sufficiency in different levels of social structure, started to matter again. Self-sufficiency does not necessarily threat collaboration and empathy and does not lead to self-containment. On the contrary, self-sufficiency approached through the prism of the sustainable concept of circular economy, can be, as demonstrated during the lockdown, one of the few valid strategies towards the resilience and the sustainability of the cities. Inventing ways to transform existing urban environments into self-sufficient neighborhoods, where inhabitants can cover their everyday needs within a walking or cycling distance, became our daily routine for weeks. A walking distance network of open public spaces, groceries, off license shops, supermarkets, tool shops and drugstores gradually established an essential but intangible urban space syntax. Reinventing rigid circular economy clusters and active communities during the pandemic, by using a reasonable walking or cycling distance, brings forward the long discussed urban sustainable approach of the walkable cities.
According to Jeff Speck, there are 4 basic factors for walkability[12], involving a reason to walk, achieved when walking into a vivid diverse environment of mixed uses; a safe walk, during which you are and feel safe 24/7 with open shops and people walking all day long and in a place where you feel you have prospect and refuge characterized by visual and physical connectivity; a comfortable walk as far as space and orientation are concerned; and finally an interesting walk, a walk that could include potential encounters in a lively environment. Side by side, cycling could also contribute considerably to a mentality of a new urban mobility in walkable cities' neighborhoods and communities and that is why most governments around the world in response to the pandemic enhanced existing and developed new cycling routes in city centers. Finally, trams could also cover public transport mobility needs between urban transit points and reduce considerably the use of cars, by enhancing local public transport for people with different abilities or needs.

Embodied knowledge

We have to admit that we are addicted more and more to the charm of the image and we are sick and tired of trying to seek the profound essence of things that concern us or surrounds us. Reality seems to be absent in everyday life and be present in reality shows and virtual reality reproductions. Movement in the modern cities appears mostly in terms of getting somewhere and coming back, regardless of all the in between places or people that we have to cross by. That leads to a new perception era that focuses on the ephemeral, on the short-lasting importance of everything. The image stands out as our last resort in our struggle to perceive the world. Today, we continue to move and commute in a mechanical, unconscious way passing through neighborhoods, streets and public spaces in an attempt to soothe our

existential need for proximity, closeness to things, a feeling present when we dwell in places, places of encounter, with specific visible or perceptible characteristics. In our effort to resist to the existential fear that the absence of place evokes, we focus on urban design. Urban design can and should stimulate our senses, force us to rediscover the qualities of inhabited spaces. As outlined in the political theory of William Connolly, in his critique of the normalizing tendencies of liberal democracies "Since the self is not "designed" to fit perfectly into any way of life" and in order to effectively respond to this challenge "we should … endorse the idea of slack, which enhances the process of civic virtue within the space appropriate to it. During this process it is important..."to observe trace but also"… invent and establish spaces of encounter, embracing the ordinary, all the activities of everyday life"[13]. Therefore, it is time to reflect upon the metropolitan condition of urban dwelling and focus on the discovery of new narratives for the city, by interacting with existing urban environments and by mapping, designing and connecting public spaces which could generate a common "embodied knowledge"[14] of places.

High streets

For decades, in the UK, high streets provided communities with sound social narratives. The significance of such places of civic virtue, with a high density of mixed diverse uses is non disputable again today as they orientate our everyday routines and encourage social encounters. Jane Jacobs fought for urban complexity in the streets and argued that streets are the main public spaces where social interaction takes place. Spaces where "a sidewalk life arises only when the concrete, tangible facilities it requires are present (…) If they are absent, public sidewalk contacts are absent too"[15]. However high streets today, appear unable to compete with market giants, and are struggling to overcome difficulties and save their independent shops. Mary Portas in her 2011 independent report, saw potential in the future of high streets and claimed that:

"Fundamentally, I believe that our high streets are uniquely placed to deliver something new." They "…. can be lively, dynamic, exciting and social places that give a sense of belonging and trust to a community……. I also fundamentally believe that once we invest in and create social capital in the heart of our communities, the economic capital will follow."[16]

"One of Porta's report's main recommendations called for support for Town Teams - an inclusive business association model designed to promote a local area, rising funds using Business Improvement Districts (BID). Town Teams are creating the potential for a positive and inclusive model to allow local business owners to pool resources and self-organize; to publicize and celebrate an alternative to modern commercial centres and out of town shopping. Not by copying them at their own game, but by leveraging the strong selling points local high streets already have: character, relationships, uniqueness and community."[17]

Adding to the comment made by Portas highlighting the importance of the high streets as vital organs of the city and attempting to revisit key concepts of Jane Jacobs approach about the "just city" and urban complexity, I would argue that high streets could be strategically chosen today to provide an opportunity to self-organize "localities" and act again as the rigid cores of communities by remapping in a sustainable and resilient way city centers and entire cities.

Social cohesion analysis and collaborative action

At this point, we would like to focus on the importance of two basic factors that could provide urban design with the means to embrace social cohesion, reinvent collaboration, address the issues and respond to the modern challenges of our times. First of all, there is an urgent need for a profound social and functional research and analysis of existing and potential neighborhoods, communities, developed

by carefully observing their unique, outstanding social, economic and cultural characteristics. What we have witnessed during the lockdown could become our compass for the future. An analysis that could become the plinth of reimagining and redesigning our cities, and that would possibly unravel a contemporary urban vision with direct similarities to the one Patrick Abercrombie and J.H. Forsaw dreamt and set the bases for during the Second World War, which was only a part of Attlee's government plan for establishing a welfare state that would provide social security for everyone from "the cradle to the grave". [18] This widely influential vision of the future of post- war London with international impact is now ignored with designers and citizens mindful primarily with the image of the city. Today, we will all have to admit, that urban design approaches without social orientation, and concern about the profound essence of the ordinary things are unable to handle complexity and diversity in the cities and therefore appear to be non-sustainable and out of date. It is high time urban designers embraced the importance of collaboration with as many active parties involved, as possible, authorities, groups, initiatives, citizens.

We can recall prominent different in period and content examples of multidisciplinary collaboration projects. Firstly, we would like to mention the post war example of Bakema and Van der Brook architects, Linjbaan project, a new neighborhood and a commercial and recreation center in Rotterdam, with a vivid linear mixed uses pedestrianized core.

"The effect of the Lijnbaan is warm, lively, almost gay: the daylight, the waving flags, the delicate acacia trees, the rectangular flower beds, the occasional benches, even a glass-enclosed café area plump in the middle of the mall -and, not least, the human figures, moving in and out between the shadows of the covered way and the open sunlight, in an area that is entirely their own. The unity and harmony of all this delight the eye, with just the right combination of the artful and the natural, the intimate detail and the clear over-all pattern."[19]

Lewis Mumford

It is also worth mentioning the recent Assemble's Turner Prize (2015) winner project, Grandby 4 Streets. A project, in which active participation and collaboration of local people managed to effectively transform a deteriorating urban environment into a vivid community place. "The project is a collaboration with the residents of a rundown council housing estate to clean up the neighborhood, paint empty houses and establish a local market. Granby Four Streets involves the renovation of 10 houses and a series of empty shops, planting and creating social outdoor spaces, and offering building jobs and training to local people. Also as part of the project, Assemble created a workshop selling homeware made in collaboration with local artists and craftspeople."[20] Both projects, among others not mentioned in this paper, showcase the fact that collaboration enables architects and urban designers to reimagine cities as a potential network of communities, circular economy walkable neighborhoods, encouraging people to participate, to interact with and move comfortably in a locally generated network of vivid diverse mixed uses environments and open public places, acting at the same time as a wide open field for diverse social activities and encounters.

In Soft City, Jonathan Raban wrote:

"…. The city goes soft; it awaits the imprint of an identity. For better or worse, it invites you to remake it, to consolidate it , into a shape you can live in. You too. Decide who you are and the city will again assume a fixed form round you. Decide what it is, and your own identity will be revealed."[21]

In an attempt to embrace the informal dynamics of social fabrics and urban public places, in neighborhoods and communities we would reach the conclusion that architects, urban designers, authorities, and active citizens would need to actively collaborate and act for the development of a wide network of open, democratic[22], multicultural, soft[23] and slack public community places, which will

gradually encourage social encounters and allow placemaking to flourish. Places with qualities that could reinforce community spirit, which would reveal the beauty of the ordinary, in everyday life, encourage citizens to engage, provide the means to cherish the civic virtues of circular economy, and finally, places which embrace urban diversity and complexity.

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HUMANITARIAN ARCHITECTURE AND THE CREATION OF SCHOOLS FOR DISADVANTAGED COMMUNITIES IN CHINA

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INTRODUCTION

In recent years there have been increasing concerns about the roles and responsibilities of architects and the appropriateness of humanitarian architecture. Similar to the global picture, research into post-disaster humanitarian architecture in China has increased significantly in recent years, however, research into 'non-disaster relief' projects focused on socio-economic development is rare. To approach the phenomenon in more detail, this paper focuses on two specific case studies, *the Bridge School project* and *the Xiashan Primary School project* and examines the different delivery processes of each project. The analysis will also articulate the delivery mechanisms for each project, issues and challenges, and the impact on the local community through a comparison of the two projects. The research project's methodology, research methods application, and the potential gaps and weaknesses will be examined to draw lessons in relation to future of research into humanitarian architecture.

WHAT IS HUMANITARIAN ARCHITECTURE?

In the past few decades there has been increasing global concern for people in developing countries who are suffering from disasters, diseases, poverty, etc. As a result, many charitable organizations, architects, universities and others have become involved in humanitarian projects to help alleviate some of these social problems by utilizing architectural design skills. Humanitarian architecture provides solutions in response to natural- and man-made societal or environmental problems and its scope can be broadly classified into two categories: 'post-disaster' projects; and 'socio-economic community development' projects. These are often referred to under many guises, such as "public interest design", "community design", "design for the broader good", "pro-bono design", "socially conscious, socially just, and socially aware design", as well as "asset-and needs-based design".[1]

Humanitarian architecture has been undertaken in China, however, for cultural reasons this has not been under the 'humanitarian' banner. Indeed, the term 'humanitarian architecture' is not recognized by the Chinese architectural community and similar descriptions tend to refer to "architects involved in the humanitarian field" or "an architect with a humanitarian spirit". As such, humanitarian architecture within China is typically known as "charitable public welfare architecture" and "humanitarian" efforts are considered to belong to less developed countries.

HUMANITARIAN ARCHITECTURE IN CHINA

In the last ten years, due to the fragile rural environment in China and frequent natural disasters, there

have been many ‘humanitarian’ projects developed to respond to the need for ‘post-disaster reconstruction’.[2] As a result, and similar to the global picture, research into post-disaster humanitarian architecture has increased significantly, however, research into ‘non-disaster relief’ projects focused on socio-economic development is rare. This research therefore focuses upon humanitarian architecture, such as school projects, that serves under-developed communities. The rapidly developing economy in China has resulted in the gap between rich and poor becoming wider particularly in relation to the standard of education and school facilities between urban and rural areas.[3] This situation has particularly affected migrant workers, who are the products of the unique urban-rural system in China. This has resulted in a special social group emerging whereby many migrant workers move to cities for employment opportunities leaving their rural ‘left-behind children’ in their home-towns or villages.

In terms of project initiation, the delivery process of ‘humanitarian’ schools in China, can be grouped into five categories: government-initiated; NGO-initiated; private architectural practice-initiated; higher education institution-initiated; and company-initiated projects.

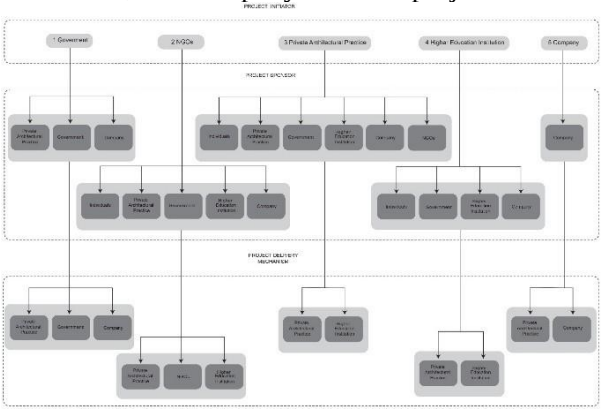

Figure 1. Five kinds of delivery process of ‘humanitarian’ schools in China

INTRODUCTION TO THE TWO CASE STUDIES

This paper will focus on two projects, the Bridge School and the Xiashan Primary School. The Bridge School designed by Li Xiaodong Atelier was constructed in 2009 in the village of Xiashi in Pinghe County, Fujian Province in southeast China. This Aga Khan Award winning project is a typical case in the provision of schools for the disadvantaged communities and it provides both physical and spiritual functions to the local community. It forms a bridge over creek between two earthen buildings, containing two classrooms, a playground for children and a stage for the villagers, which aims to link the past, present and future. The Xiashan Primary School designed by STI Studio, Architectural Design and Research Institute of Zhejiang University, and Department of Architecture, Zhejiang University was a resettlement primary school project completed by 2016 in Anji County, Zhejiang Province, China. It was completed from “garden” to “yard”, which began with the idea to build a spiritual “home” for children and the methods "enclosure" and "reorganization" used to organise the teaching space and auxiliary space.

RESEARCH METHODOLOGY AND APPLICATION OF RESEARCH METHODS

To conduct the case studies in this research, the following research methods were used: semi-structured interviews; participant observation; and a review of documentation. The case studies were developed through a number of interviews with key participants in the design, delivery, and use of the school. These included the architects, project managers, school presidents, parents, and local residents.

During the interviews, the questions related to process of humanitarian architecture, the involvement

and experience of those key participants, and potential ideas for any improvement or change to the projects.

COMPARISON OF THE TWO CASES

This analysis will examine the delivery mechanisms for the projects, issues and challenges in the process, and the impact on the local communities through a comparison of these two projects that represent non-disaster relief humanitarian architecture in the disadvantaged communities of China.

The Bridge School:

The Bridge School was initiated and designed by architect Li Xiaodong and project manager Chen Jiansheng in 2008. It was initially to be fully funded by a Singapore-based friend of Li Xiaodong through a five hundred thousand RMB public welfare fund donation. However, due to financial difficulties, only half of the project could be funded, resulting in the need to find another sponsor to fund the remained to ensure completion of the project.[4] The Hope Primary School was launched by the China Youth Development Foundation (CYDF) in 1989 as a public welfare initiative in China, whereby the building of primary schools and funding the disadvantaged students became two major public welfare projects. To ensure the later operation as a 'Hope Primary School', the CYDF requires 50% of the funds from donors and 50% from the local government.[5] The Bridge School was later implemented as a charitable project by the CYDF, with the initial private donor providing 50% of the funds through the CYDF and the local government funding the balance.

Figure 2. Villagers using the steps, slide and places underneath the Bridge School for play and leisure (photograph by author)

The rationale behind the Bridge School is complicated. It was designed with the original intention of being a Hope Primary School in the Chinese countryside. Its concept is derived from the local earthen residential buildings, introduced to make the project more "meaningful" [6] and respectful of the local context. These dwellings, known as "Tulou", were typical to southeast Fujian Province from the twelfth century through to the twentieth century and typically used by a single clan or a group of families. They are usually square or cylindrical in plan, between three and five stories, and constructed of thick load-bearing rammed earth walls. As a local, the project manager had seen many of these traditional buildings being demolished and was impressed with the "contextually appropriate proposal" for the Bridge School.[7] Coincidentally, in 2008 there was also an application to gain World Heritage Status for these rammed earth dwellings.

Figure 3. An interior view of a Tulou earthen residential building (photograph by author)

In terms of project realization, project manager Chen emphasised that: “If the locals have not understood, supported or realized how the project would be in the future, it is difficult to build up a favorable long-term operation.” [8] The challenges were reflected in the early stages of the school due to a lack of communication with local villagers. Most locals thought it was a commercial tourism project, rather than a charitable public welfare project. This misconception made it difficult to deal with matters related to some of the old derelict houses. As the houses involved having already collapsed, or of very poor construction quality, the villagers were focused on financial compensation. As a result, the design team soon realized the importance of having smooth communication with the local community. Thus, they explained the project to the local village officials and built up a closer relationship with them including enabling them to engage through the development process. This gained their trust as they began to understand the intentions of the project.[9] One significant change to the initial project design as a result of community engagement was the creation of a grocery store beneath the school. This space had originally been planned as the admissions room for the school and involved relocating a small grocery store opened by an old woman in a very small old house next to the site.[10]

During the design phase, the government required to retain two classes within the school. However, after an in-depth investigation and evaluation of the project, by a local cooperative design institute in Xiamen, it was considered that the layout of the Bridge School was insufficient to meet the requirements of a primary school and did not meet the China’s specifications for primary schools. Nevertheless, the architects still hoped that it could function as a primary school in the future and therefore named it Bridge School, meaning "book" in Chinese. After the completion in August 2009, it opened as a school for a short time, however, in 2010 the two classes moved out of the village and joined a nearby primary school, which was conducted under the legislation for the ‘Movement of School Closures and Mergers’. Most of the villagers are old and the young people have migrated to larger towns and cities in search of employment. Although some children remain and live with their grandparents there were sufficient primary schools nearby. [11] Thus, the local children only studied in the Bridge School for a short period and symbolically the Bridge School then became a public reading room.[12] However, the actual situation is that the villagers do not use the building itself, and unless the tourists request to visit, the door is kept locked.

Figure 4. The elderly villagers sit chatting on chairs or the bench in front of the grocery store (photograph by author)

Despite, not achieving its desired objective of providing a new school facility, or indeed a well-used internal space, the Bridge School does re-activate the village and the surrounding environment. Its own function as a 'bridge', including the relationship with the surrounding earthen buildings has been a success.[13] It has become a significant structure and a much-needed leisure space for villagers. Even the small bridge, hung by ropes under the school has become an important local place for old people to congregate on small wooden tables and chairs. This provides a natural setting that is protected from the rain where elderly villagers sit chatting on chairs or the bench in front of the grocery store. The drainage system of school is also a feature with rain being collected before falling dramatically into the small river. There is also a small open space next to the Bridge School, where children in the village would chase chickens and play on the slides and steps leading up into the school. These were ergonomically designed for small children and this has clearly resulted in their successful adoption.

Figure 5. Bridge School provides a new bridge crossing and access to the earthen buildings on both sides of the creek (photograph by author)

Soon after the completion of the project, mainly due to the publicity of its Aga Khan Award for Architecture 2008-10, many people, including foreigners, came to visit which assisted with the economic development of the village. Because of the establishment of the Bridge School, a bridge was built between the two significant family homes ("Shi" and "Lin") on either side of the river, which created a convenient passage across the valley for villagers. The initial costs of the post-construction maintenance and management of the Bridge School came from Aka Khan prize, however, this only

lasted for the first three to four years after the project's completion in 2008. Subsequently, maintenance has been neglected with the local government reluctant to fund repairs and the local villagers unable to do so. As such, there is a realistic danger of the commendable outcomes of the project now encountering problems that will impact upon its future success as an important central place and facility within the village. Also, the continued demolition of many old houses together with the construction of new dwellings is affecting its local context. The project manager Chen lamented that he hopes the villagers and local government can take the initiative to maintain the building.[14]

The Xiashan Primary School:

Unlike the Bridge School, the Xiashan Primary School is a government demolition and resettlement project. As part of the overall regional planning, the government commissioned Professor Qin Luofeng from Zhejiang University to complete the project. Professor Qin has completed many projects in Anji, and his design team, STI Studio has undertaken many large regional planning with lots of village renovations across the whole Ring Mountain area, including the overall planning of Xiashan Village (50 square kilometres).

Anji despite its natural beauty, required comprehensive improvements including the rebuilding of the road, creation of new hotels, and renovation of the Lingfeng Temple. This was achieved with money from selling land for development.[15] The original Xiashan Village had already been demolished, and the villagers were relocated to resettlement houses, leaving a small piece of land to rebuild the school. The motivation of Xiashan Primary School project was to rebuild a school mainly for 'demolition and resettlement' residents to solve their educational problems. However, when the new school was built, the children of residents who were new to the area were also welcomed.

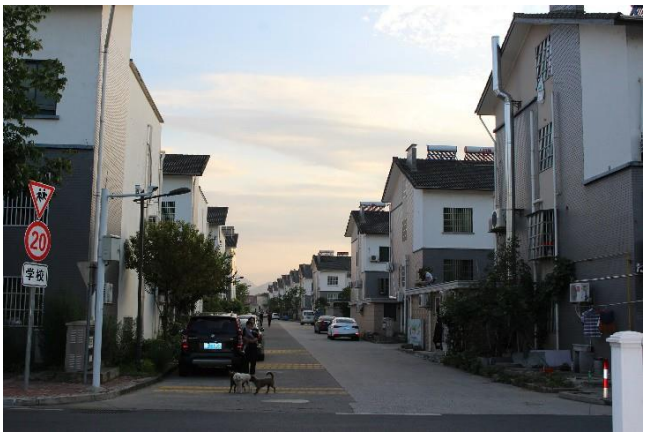

Figure 6. The villagers of original Xiashan Village were relocated to resettlement houses (photograph by author)

As a government 'demolition and resettlement project', the Xiashan Primary School was fully government funded, using the proceeds from land sales and "the government directly handed over the project to us, and there were no others in the middle" according to Professor Qin.[16] The design fee was 30% to 40% lower than typical projects[17] and most of the fee went to the engineers of the Architectural and Design Institute of Zhejiang University. It took more than two years (June 2014 to August 2016) to complete the school, as the money was obtained step-by-step through the sale of land and each stage only commenced as funds were received. The construction cost of Xiashan Primary School was very low, and it was implemented in two phases between August 2015 and August 2016.[18]

Figure 7. An exterior view of the Xiashan Primary School, renamed as "Anji County Experimental Primary School - Lingfeng Branch" (photograph by author)

The project had the cooperation of the local government. "We have successfully completed a lot of projects in Anji. We were very trusted in the process of approval."[19] At the beginning of the design phase, the government only intervened to require minor adjustments, such as opening windows. The villagers also had opinions on the design, however, these were not in line with the initial ideas and it was necessary to hold discussions. These were not undertaken directly by STI studio, so the government did this themselves. Thus, the site location is a result of communications and discussion with the local villagers and as a result, the architects revised the plans.

Unlike most of current architecture projects in China, STI Studio participated in the Xiashan Primary School project from the beginning to the end, from design drawings to construction drawings, until the project completion. The STI Studio was responsible for both the drawings and the supervision of the construction phase of the project.[20] In China, construction is not usually supervised by the architects, but in this project, all the construction problems were solved by the architects. The engineers also went to the construction site regularly, helped to monitor and solve the problems until the construction was completed, which is typically outside of the architect's responsibilities in China.

Figure 8. An interior view of the Xiashan Primary School (photograph by STI Studio)

The Xiashan Primary School did not start as a public welfare project, but it now has a public welfare

impact. Indeed, it has been renamed as "Anji County Experimental Primary School - Lingfeng Branch". A parent whose family lives in the demolition and resettlement housing indicated that the children really like this new school as it is beautiful, the facilities are new, and it is convenient compared to the previous school.[21] With the completion of the school and the new roads, the traffic is much more convenient, and the number of students has also increased. Overall, the villagers are satisfied with the demolition and resettlement houses. The school is also located very close to the demolition and resettlement houses. A representative of Xiashan Primary School gave some feedback on the current usage of the school.[22] The school officially opened in September 2015 with six year groups and three classes in each year, but it has now expanded to five classes in some year groups. The number of students has increased significantly and there are now twenty-two classes.

Figure 9. The large special-shaped windows corridor of the Xiashan Primary School (photograph by author)

The school has now been used for more than four years and the final phase of the project was completed until September 2018. Some design issues that have gradually emerged after it was put into use. Firstly, there are large special-shaped windows, but the locations of some of them are very high which causes rain and snow to enter the corridor and when the rain is heavy in the summer, water will accumulate. For example, heavy rain in the Summer of 2017, caused the entire floor of the dance classroom to be flooded. Also, in the winter, the snow freezes and it becomes slippery and dangerous for teachers and children. The corridor connected to the second-phase teaching building on the second floor always freezes in the winter, which results in laying temporary mats or closing that corridor. Secondly, as the teaching buildings are designed with a flat roof, the walls need to be plastered every year because of rainwater leaking into the building. In addition, natural light in the classroom is insufficient to meet the daily learning requirements of the students, thus the lights need to be turned on during the daytime, which has increased overall energy consumption. Moreover, during the fieldwork, sound problems were noted due to the hard surfaces of the interior. Even during class, the reading sounds of children in the classroom reverberate throughout the building, and the noise is even greater after class. However, it still is a very satisfactory school overall, from the beauty of architecture to the acceptance of the students.[23] At present, the school is not just serving children who are relocated to the new housing. Indeed, there are now five ongoing residential developments around the school, and it will serve the needs of all surrounding residential projects. As the Xiashan Primary School is a relatively new project, the final phase was completed in September 2018, so there has been little need for post-construction maintenance and management apart from dealing with the issues of rain and snow.

CONCLUSIONS

There are some important lessons that can be learned from these two projects in relation to future 'humanitarian-type' projects. Indeed, these projects emphasise the importance of close engagement, collaboration and clear communication with the local community and local government from the outset of any humanitarian architecture project. It is also essential that the funding mechanisms are fully understood, and costs are planned accordingly including consideration of the need for future repairs and management. Any policy requirements in relation to the intended end-use must also be identified and complied with to ensure the long-term success of the project. In addition, the design should not only focus on the beauty of the building, but also a careful understanding of the needs of the end-users.

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LEGACIES FOR THE FUTURE, REVIVAL OF KHEDIVIAN CAIRO'S AUTHENTIC PATTERNS

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INTRODUCTION

In Every city there is an essence or a spirit that lays within its layered organized complexity. It creates an order that can rather be "felt" or understood by "implicitly" than described with verbal definitions.[1]This order is what gives the city its identity through the experience of its inhabitants.
With the change of time, the change Ideologies, and socio-cultural concepts, these orders may remain, evolve, or even replaced by new ones. This Research aims to explore the embedded patterns in the built environment with the great paradigm shifts that creates new patterns of events. The research focus on the Egyptian case with the great paradigm shift in ideologies that toke place in the second half of the nineteenth century and created a new urban reality in the city of Cairo. Then, the paper will propose a model of design for the current urban reality that aims to revive the old legacy and its authentic patterns in a way that suits current and future urban demands.

METHOOLOGY

First, this paper uses analytical methodology to understand the phenomenology of place making through testing the hypotheses of the urban pattern language on the case study.
Then, it will aim to unfold the process of this urban pattern language in order to reveal a model that deal with the existing urban fabric as a potential and a step for urban evolution of the old city.
Finally, it will experiment, explore, and analyze the proposed model of design as "a Legacy for the Future", This will show the potential of recalling iconic features as a reference method for design versions. it will show the strengths and benefits. Of this model of development from a commercial and social perspective. It targets society solidarity at the same time to recall a lost legacy and re-build the Egyptian Collective Memory.

ON THE PATTERN OF EVENTS,

From the beginning of the second half of the nineteenth century a great paradigm shift has ruptured the Egyptian history. it was a shift in ideologies that effected the collective Egyptian thinking untill the time being.

ANALYSIS OF THE FIRST PARADIGM SHIFT (THE BIRTH OF PARIS OF THE EAST PROJECT)

Change and transformation

The great paradigm shift from the Mamluk/ Ottoman eastern model to the western/ European Napoleon renaissance. This Phase can be divided to three historical stages:

i. **Exposure:** The first exposure to the western model at the end of the eighteenth century started with the beginning of colonization era in Africa and the invasion of Napoleon Bonaparte to Egypt (1798). [2]

ii. **Inspiration**: Cairo rising at the Age of Mohamed Ali Basha (1805- 1848) that was marked the end of Mamluk era and the beginning of governmental re- organization away from the Turkish empire. This age was acknowledged as the age of industrialization in Egypt. This era was recognized with its cultural reforms. Mohamed Ali Believed in the value of Education he adapted the European educational model in his established schools and sent several educational missions to transfer knowledge from Europe to Egypt. This era was recognized with its cultural reforms It was the age of inspiration from the European model.

iii. **Importation:** importing entire European Cultural and urban models in the age of Khedivi Ismail (1863-1879).

Westernization

After passing the three historical stages in a relatively short time span, most of elite society and ruling class adapted the western model as a reference for modern Egypt specially the French culture ideology.

Notion Activation

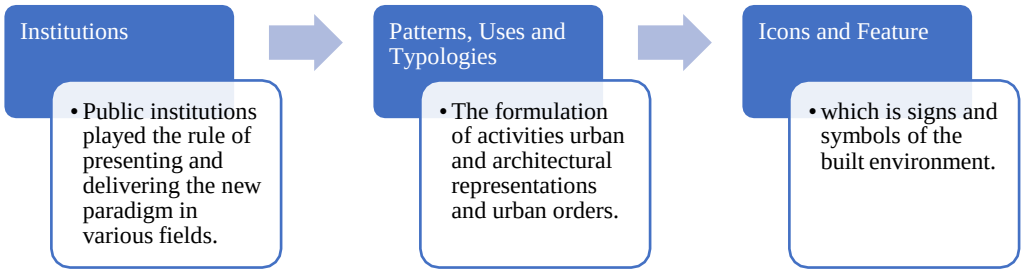
"My Country is no longer in Africa; We are now part of Europe. It is therefore natural for us to abandon our former ways and to adopt a new system adapted to our social conditions" [3]

With this statement by Khedive Ismail in 1879 it was the start to formulate the collective Egyptian thinking through the manifesto and transform it to a cultural / Economic infrastructure creating an ideology that formed the Egyptian reality.

As a result, a vital new city of Cairo was constructed on the west of the old one and closer to the Nile river. The minister of public work, Ali Pasha Mubarak hired European professionals to draw a master plan of an entire city to rival Paris. [4]

MANIFESTATIONS OF THE FIRST PARADIGM SHIFT

These manifestations were presented by the following aspects that led to one another (Shape 1).



Shape 1. Aspects of manifestations

	Political Ideology	Socio- Cultural patterns	Economic
Institution	-The reflection of European democracy through the establishment of parliament 1866. - Facilitating the new declared manifesto through official procedures and documentations.	- Adapting the European model in Educations that made European education a reference for elite education. - The opening ceremony of Suez Canal with a specially written opera for the event marked a new cultural tread for the upper class.	Adapting the Economical and financial European system and the transformation from Barter system to banking and stock market exchange System.
Patterns, uses and Typologies	New building typologies such as the Parliament. The isolation of the ruling palace from the religious institutions.	Public imported cultural & social life activities were promoted such as Theaters, opera house performances, sports clubs, coffee shops and public parks.	The emergence of European pattern of shopping such as street malls and department stores, International franchise Downtown hotels such as Shepard and office buildings for multinational agencies.
Icons & Features			
	Figure 1. "Abdeen Palace" The Ruler Palace in a French Renaissance style. [5]	*Figure 2. Cairo opera House with Ibrahim Basha Square.* [6]	*Figure 3. The National Bank of Egypt Established 1898*[7]

Table 1 Manifestations Analysis of the first paradigm shift

TRANSFORMATION TO MODERNITY, THE BIRTH OF EUROPEAN CAIRO

In the designed new master plan, multiple urban centers were created. These nucleuses urban centers with their surrounding commercial/ residential sprawls commenced to weave the new urban fabric

through different urban features such as piazzas, squares, streets, and open gardens that reflected the political and socio-cultural patterns in a radical change from the past Egyptian patterns (Fig. 4).

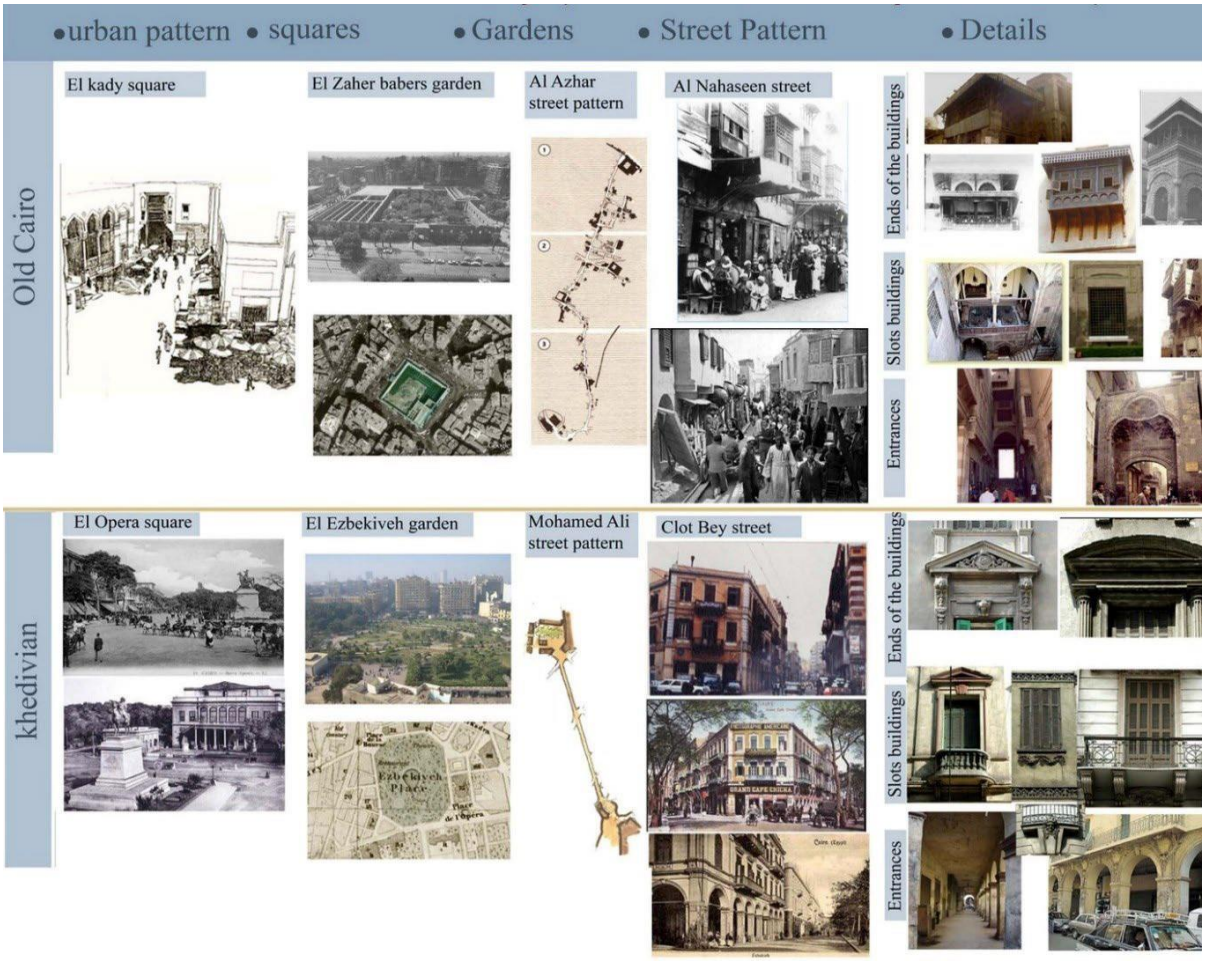


Figure 4. Transformation to Modernity Analysis

THE SECOND PARADIGM SHIFT

In 1952, the republic revolution caused a great shift in political ideology that subsequently affected the economy and the society. The revolution marked the end of constitutional monarchy and aristocracy of Egypt and Sudan and established a republic. On the economic and social side, the transform in ideology from capitalism to socialism affected the Khedivial Cairo radically. As the social fabric of the area changed over the years, the middle and lower classed started to inhabit the area. In 1971 the Royal opera house was destroyed by fire and later a multistory parking was constructed in its place. *El Azbakya* Park was divided by streets. The trees were cut, and several buildings were built in parts of its land. Additionally, most of the area streets was invaded by unplanned local markets and its famous buildings turned to warehouses, and workshops.

The situation today [8]

- The deterioration of social and economic activities and the invasion of unplanned land uses.
- The Lack of adequate green public spaces or a definite pedestrian route.
- The lack of enough parking spaces.

- The trespassing of vehicle bridges on the main urban spaces and historical remaining buildings.
- The destruction of the visual image of the city that was ones called “Paris of the East”. (Fig. 5)
- The extreme vehicle traffic density that intersects and interrupted by heavy pedestrian movement.
- The demolishing and the deterioration of many historical and listed buildings in the area.
- The high level of visual, acoustical, and environmental pollution.

Figure 5. The Deterioration of the visual image of the city and the intersection between pedestrian and vehicle movement. [9]

LEGACIES FOR THE FUTURE [10]

The proposed model aims to restore the old legacy of the place by recalling icons and features into patterns to formulate reference of design vision. This design visions aims to rebuild the Egyptian collective memory through Khedivian Cairo memoire. The design proposal presents a multi-use urban corridor that starts from Tahrir square to reach the main area of design which is Opera square with *El Azbakaya* Park.

The revival of the authentic patterns of Paris of the east project concept is activated through 3 dimensions:

- **Cultural:** Emphasizing the role of city memory to rebuild Egyptian collective memory.
- **Commercial:** Amplifying investment opportunities in accordance to nostalgically feeling connect inhabitants & Tourists with the past.
- Strategic: planning the proposal to be part of 2050 Cairo strategic plan to be Green, Global, and connected.

Mobility oriented Development,

Jane Jacobs in her book “The Death and Life of Great American Cities” argued that Automobile have literally disemboweled the close grained and well compacted city centers. But at the same time no city would have survived depending on one type of transportation. It can be said That the key of successful cities is the multiplicity of choice. [11]

The proposed design aims to transform Attaba District from a private Automobile oriented to mobility oriented. This mobility is achieved though the integration between TOD (Transit Oriented

Development) and POD (Pedestrian Oriented Development). The TOD concepts depend mainly on the integration of private vehicle usage reduction with the increase of pedestrian mobility and public transportation in correspondence to the existing and proposed land use.[12] The transit-oriented corridor can be achieved by,

- Pedestrian Friendly planning.
- Metro stations- Bus stations, renovation of the existing and adding new according to flow capacity.
- Provision of Parking areas.

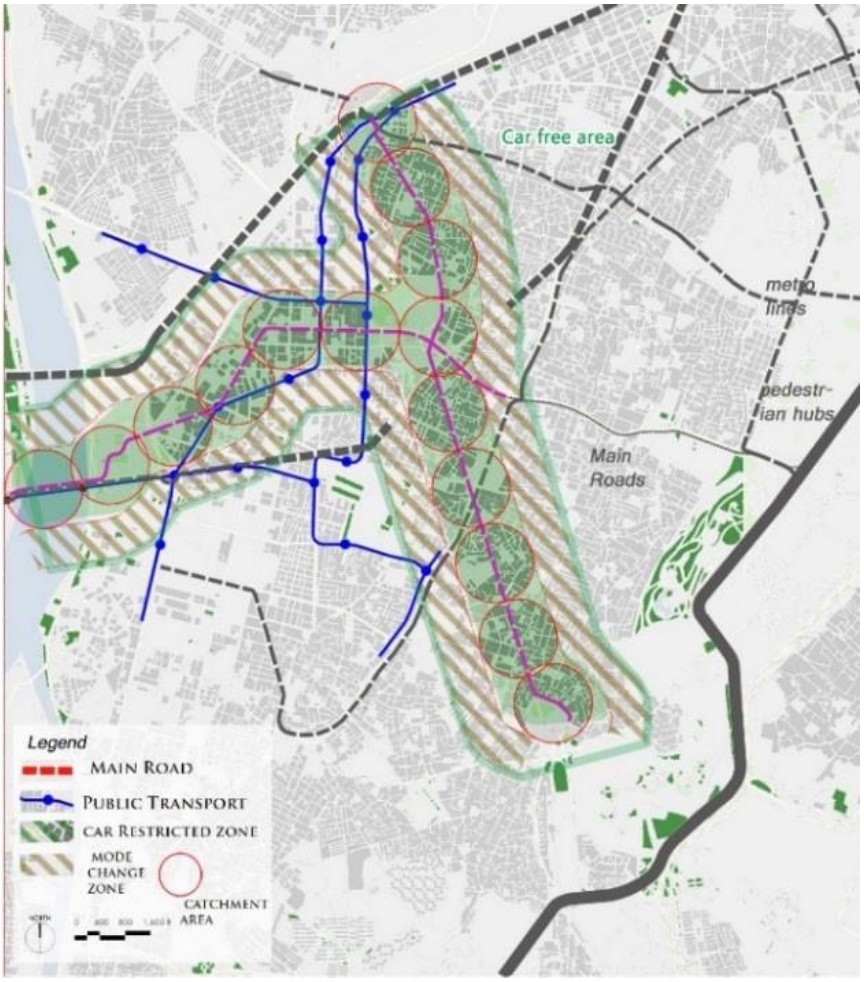


Figure 6. Main Mobility Concept

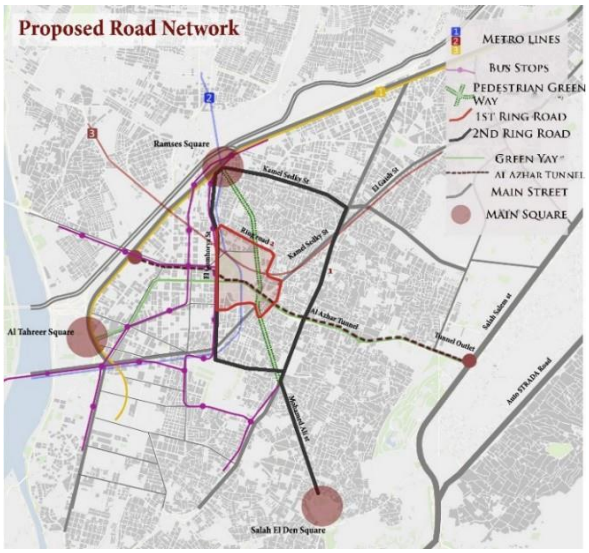


Figure 7. Proposed Main Transit routes

Proposed Land Use and visual urban Patterns

Using different sustainable development approaches to urbanely renew and formulate *Attaba* Area with different land uses such as:

- street malls.
- underground transit malls
- reuse of heritage building with a reinvest of the unique value and location.
- open museums and life performances from the 19th century life of Egypt.
- restoring and renovating unique markets such as Elazbakya fence used book market.
- the Revival of the old business street center (Borsa Street: the stock exchange market).

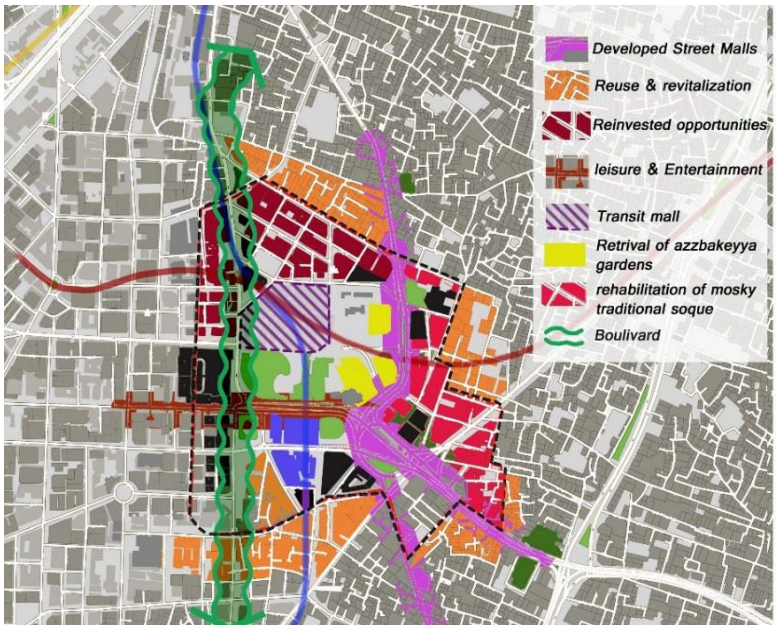


Figure 8. Proposed Land Use of The Selected Area (Attaba Area)

Proposed Visual Urban Patten

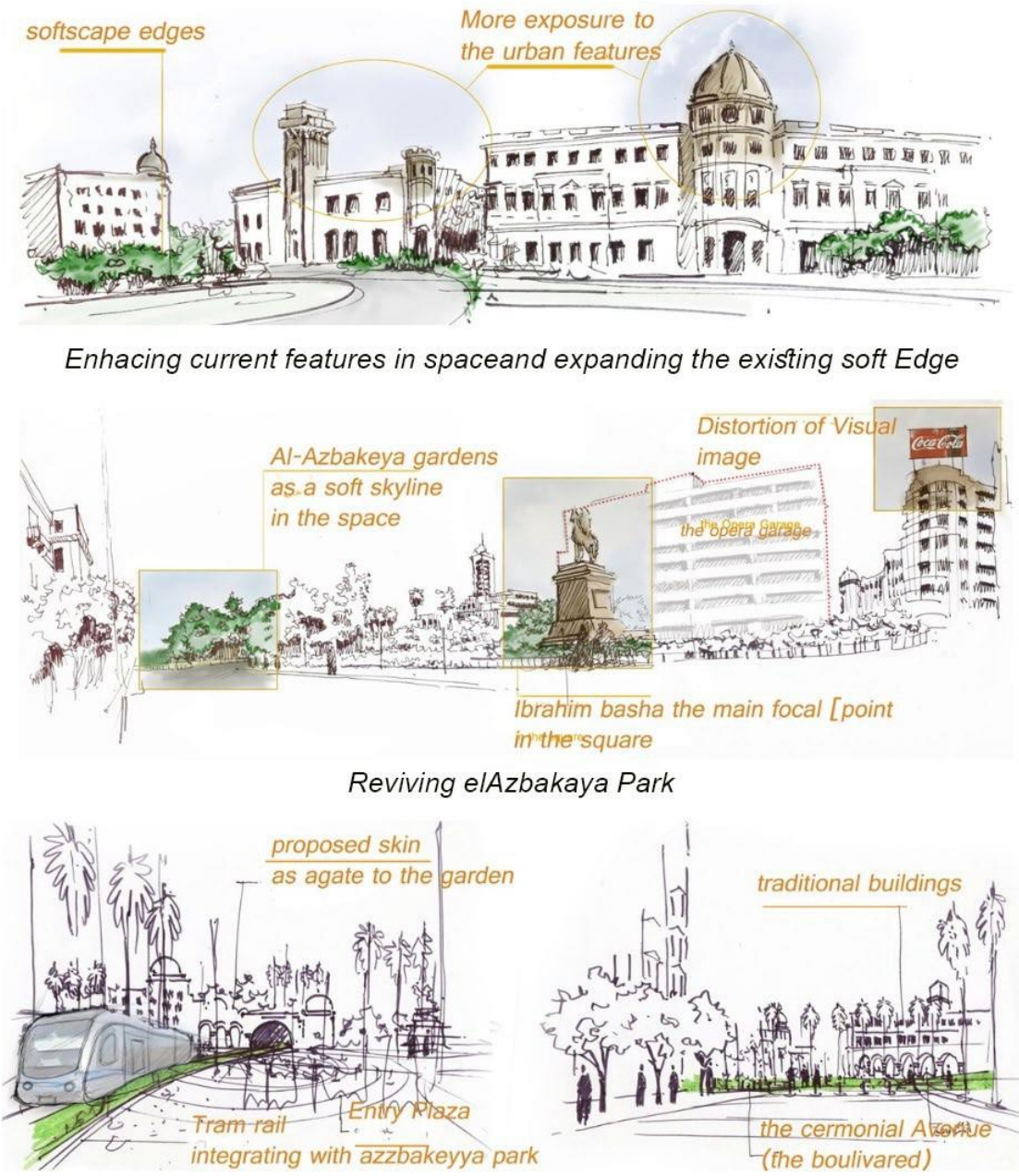


Figure 9. visual sketch of the proposed urban pattern

Master plan (Cairo's Belle Époque)

The proposed master plan is divided in to 10 main sectors. Each sector holds a distinct theme and present different cultural, social, recreational, and economic activities.

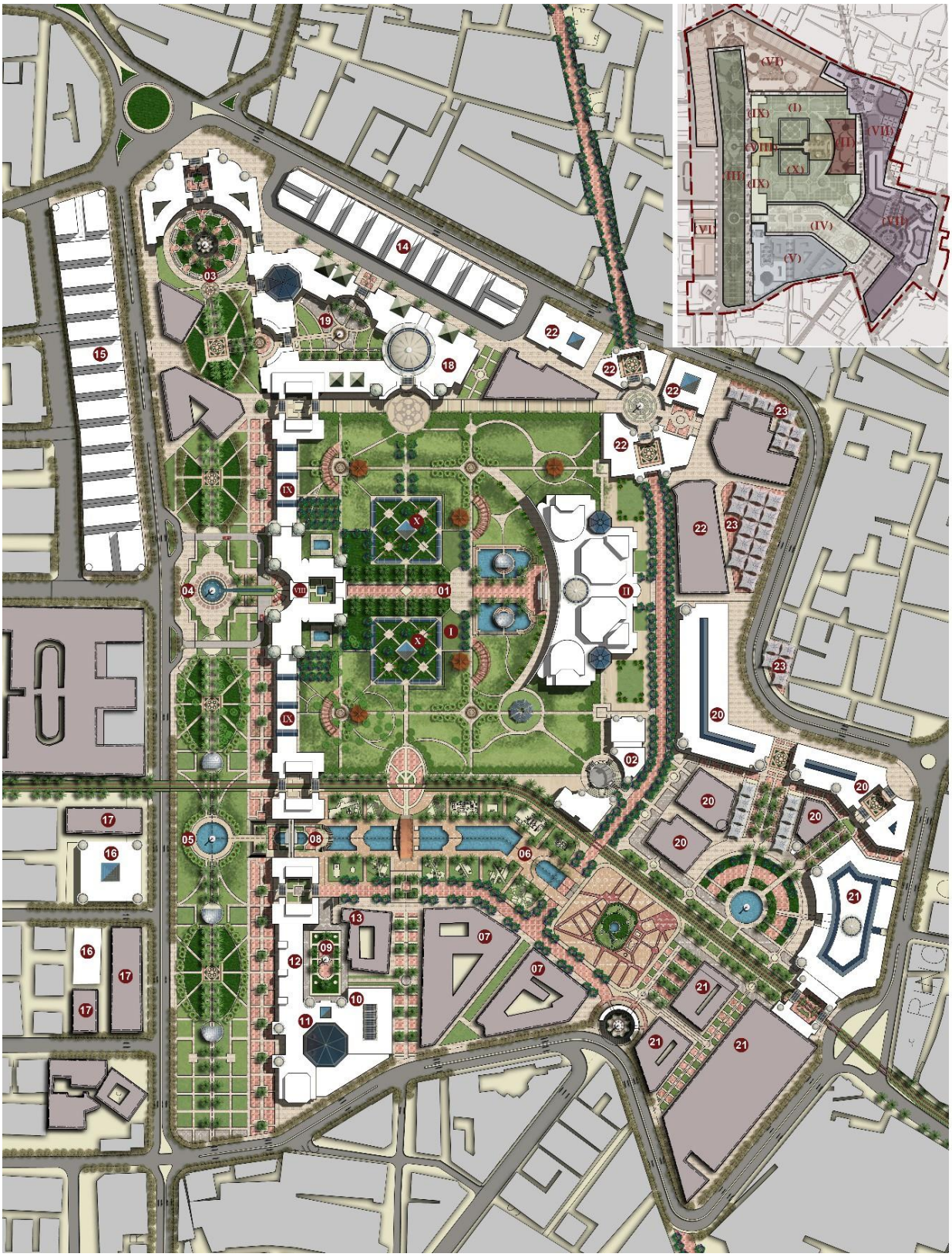


Figure10. Proposed Master Plan

(I) ElAzbakeya Grand Park

01- Ceremonial path.

02- Recreation Center that contains cinemas, Amphitheatre, several restaurants, food courts and music kiosks.

(II) The Egyptian House of Art

- The new Egyptian Opera House. (new building with a rebuilt front facade of the Old Royal Opera House.
- The National Theater (Renovation of the Existing Building).
- The Puppet theater (Renovation of the Existing Building).
- *Taliah* Theater (performing Arts theater), (Renovation of the Existing Building).

(III) Misr Elmahrusah Memorial Park

03- El Pasha plaza (*Muhamed Ali Pasha*).

04- His Majesty the Khedive Plaza (Khedive Ismail statue).

05- Old opera gate plaza (Ebrahim Pasha Statue – the old historical statue).

(IV) Cairo Memoire (Narrative)

06- Little khedivian Cairo, which is an open museum park for the Egyptian Royal Era that includes:

- Models of Famous Public Buildings of the Era such as the old opera, the geographic society building and Matatya café.
- Model of the old ElAzbakeya Park.
- Models of all royal Palace (Abdeen, Alquba, Shubra, Algawhara).

07- Egyptian Royal Era Museum: reuse of *Matafy* (the old Fire Station) and Bari Buildings.

08- Sound and light Show (re-performing old royal opera mural).

(V) Elazbakeya international book Fair (Sur Elazbakeya market for used books).

09- *Refaah Eltahtawy* plaza

10- public library

11- Main Hall.

12- multi- national Publishers headquarters/ Agencies.

13- Royal archives house (Renovation and reuse of healthcare affairs listed buildings).

(VI) Alborsa Business hub

14- *Elwakalaat* international business centers (18 plots of international companies, car trade agencies on *Najieb Elrihany* st.).

15- 26 plots for banks and stock exchange companies on *Elgomhorya* St.

16- El opera center for textile (Department stores).

17- El opera Center for textile (reuse of listed buildings).

18- service center for *Elborsa* business hub

- A branch for The Egyptian Stock Market.
- Conference center
- Exhibition halls.
- Apartment hotel.

19- Ali Pasha Mubarak Plaza.

***(VII)* Alataba Alkhadra Popular Markets.**

The renovation and transfer of the existing informal markets.

20- *ElMusky* market for clothes & household equipment.

21 *Darb El Barabra* market foe electric appliance and household equipment.

22- *Elreweiey* for furniture, kitchen, and bath accessories.

23- Open shaded plaza for peddlers and weekly flee market (the traditional Monday and Friday markets).

(VIII) Royal Shepheard's hotel ***a 5 stars hotel recalls the first European hotel in the middle east and one of khedivian Cairo landmarks. (a new building with a rebuilt facade of the old Royal Shepheard Hotel).***

(IX) ***West el Balad street mall and apartment hotels.***

(X) ***Elmetro transit mall on the underground level: connected to the underground metro station and parking area.***

Figure11. Bird's Eye View of Royal Shepheard Hotel and Royal Opera House

EXPERIMENTATION BASED ON PROPOSED MODEL SHOWING THE RESILIENCY OF THE CONCEPT &METHODS OF REVIVING

When analyzing the proposed model adaptation with 2050 Cairo strategic vision with its three main pillars: Global, Green, and connected, the following can be concluded.

Global: achieved through Multinational companies, Mixed use, Business parks

Green: *El Azbakeya* grand park (the green heart of Khedivian Cairo) with the maximization of the role of pedestrian network, the use of sustainable / environmental methods of public transportation and minimization of the role of private Automobiles.

Connected: Designed for the public and connected to other city districts by underground network and light Rails.

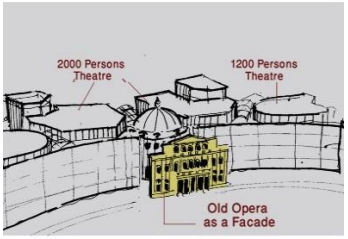
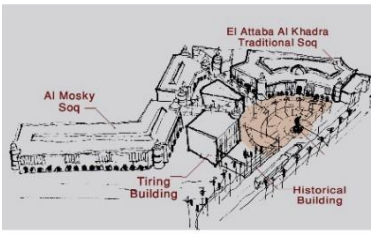
	Political Ideology	Socio- Cultural patterns	Economic
Institution	Facilitating the 2050 Cairo strategy vision that reflects the future local and global needs while Re-living the old legacy.	Connecting the new generations with the old cultural and social patterns that were considered th Egyptian golden Era.	Facilitate business opportunities to connect the local economy with the global one.
Patterns, uses and Typologies	- Restoring Cairo Green heart while connecting the restored city center to the rest of the vast city with a complex network of public transportation. - Reviving the mixed-use nature of the area and legalizing all informal markets in the area.	- Emphasizing the rule of *Attaba* and *el Azbakeya* as the cultural capital for Khedivian Era. Cairo Mimoire: mini Khedivian Cairo. - Continuing and renovating some informal legacies by reviving of *El Azbakeya* used book market and transform it to an international book fair.	- Restoring the economic heart of the city by presenting a variety of space solutions for international companies / agencies with all supporting logistics. - Returning the old multiuse street malls and the famous old hotel apartments, restaurants, and cafes to revive the old visual image of vibrant Cairo.
Icons & Features	The most famous icon of khedivian Cairo is the royal squares The statue of the hero Circular grand plaza The landmark as background.	Restoring part of the old, demolished facades for the new buildings to restore the icon value and legacy. Such as restoring the facade of the opera house and Shepheard Hotel.	Collecting all informal markets within new commercial hubs and plazas.
	 *Old Reference: Old Opera Plaza* 	 *Old Reference: Royal Opera House* 	 *Old Reference: Sednaoui Building* 
	Figure 12. New Icons, Khedive Ismail Plaza	*Figure13. New Icon, The Egyptian house of Arts with the restored false facade of the royal opera house*	*Figure 14. New Icon, Sulayman Pasha Plaza*

Table 3 Manifestations of Methods of Revival

CONCLUSION

This paper forces the light on the great paradigm shifts that creates new patterns of events. It focuses on the Egyptian case and the great city of Cairo as its capital. It presents an urban analysis for the first paradigm shift and how the essence of the city was formulated through its urban pattens. Then, an analysis for the second paradigm shift was presented to show the transformations that happened in the Egyptian community on the cultural, economic, and consequently, on the urban level.

A proposed model was presented to restore the legacy of city focusing on the area of Opera and Attaba squares which were considered the heart of the Khedivian Cairo. A framework was concluded with a mobility-oriented development plan, the proposed uses, and visual urban patterns. an analysis to all the new designed Economic and socio- cultural patterns that was designed with an inspiration from the old legacy with its iconic features.

The proposed model with the master plan in conclusion, adapts with 2050 Cairo strategic vision with its three main pillars which is Global, Green, and connected. It aims to give a solution for Cairo's heart that became in dire need for a comprehensive strategic plan to salvage the city's heart from decaying. a solution that looks within the Egyptian collective memory to restore the authentic patterns of the Egyptian golden era on social, cultural, and economic level.

NOTES

[1] David Bohm, *Wholeness and The Implicate Order*, (Routledge, London & New York,1980), P.146.
[2] Cynthia Myntti, *Paris Along the Nile, Architecture in Cairo From Belle Epoque.,* (The American University of Cairo Press, Cairo & New York, 1999), P. 10.
[3] Peter Mansfield, The British in Egypt., (Holt, Rinehart and Winston, USA, 1972), P. 11.
[4] Cynthia Myntti, *Paris Along the Nile, Architecture in Cairo From Belle Epoque.,* (The American University of Cairo Press, Cairo & New York, 1999), P. 11.
[5] Unknown Artist, https://i.pinimg.com/originals/03/55/d1/0355d1d54e4c43c53c171ae0ff6c3aee.jpg, opened June 2020.
[6] http://english.ahram.org.eg/News/114382.aspx, opened June 2020.
[7] https://www.flickr.com/photos/8637723@N05/3537576703/in/set-72157616365198651/, opened June 2020.
[8] Ibid, The Competition Documents, http://urbanharmony.org/ar%20ataba%20T-O-R.pdf, p. 9.
[9] Ibid. P. 10.
[10] The discussed proposed model was originally submitted as part of the international competition for the Urban Design, Harmony and conservation of Opera & Attaba Square, Cairo Egypt. The competition was supervised by Ministry of Culture, the Egyptian national organization of Urban Harmony (NOUH) in 2011. The Proposal was chosen as one of the top 5 and won a special prize.
[11] Jane Jacobs, *The Death & Life of Great American Cities,* (Vintage Books, New York, 1961), P.339-340.
[12] http://www.tod.org/, opened June 2020.

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DEFINING PHYSICAL FORMS OF "VERTICAL SOCIAL SPACES": A NEW SPATIAL TYPOLOGY IN THE SKY

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INTRODUCTION

In the twenty first century, across the world we are witnessing the emergence of a new urban paradigm in relation to highly urbanised, high population, high density, and rapidly expanding cities. In 2018, some 55 per cent of the world's population lived in urban areas and this is predicted to reach 68 per cent by 2050.[1] Whilst there are many significant challenges associated with this growth such as health, housing, employment, etc., an important urban design related issue that is central to peoples' well-being is the provision of appropriate public realms in which to socialize, relax, play, exercise, and to experience the city, etc.

However, it seems that the highly urbanised and dense society has placed social and spatial strain on the existing open space infrastructure on the ground plane, and this has contributed to a need for new urban places to replenish traditional spaces in many of our cities.[2] Over the last decade, the need for and design of alternative public and social spaces has received growing academic attention as we strive to create appropriate places for contemporary society,[3] yet the expanding typologies of public spaces have still to receive adequate detailed examination. This paper will focus on exploring the physical forms and characteristics of the new urban spaces being created at higher levels on and within buildings and infrastructure in cities around the world. As such, the research problem addressed in this paper will focus upon an urban space typology of "vertical social spaces" by defining and classifying a series of emerging vertical social space types from the perspective of their physical form that offer exciting opportunities for urban designers and architects within changing urban contexts.

A TYPOLOGY OF PHYSICAL FORMS FOR VERTICAL SOCIAL SPACES

This research undertook a detailed systematic survey of academic and professional literature and websites to determine the scope and extent of projects with vertical social spaces. An initial list of nearly 100 projects containing vertical public and social spaces was identified, however many were very similar, resulting in 45 places that had unique spatial qualities. A more detailed analysis of the plans, sections and photographs, of these 45 contemporary projects from the US, Europe and Asia, was then undertaken to reveal the physical characteristics of these places such as their spatial forms, scale, enclosure, accessibility, connectivity, legibility, etc. A matrix of these features reveals that the vertical social space typology can be classified into five distinguishable types according to their physical forms – as illustrated in Table 1. These are the: social roof space; raised urban platform; skybridge; vertical

atrium; and other raised indoor spaces. Other terms, such as the sky garden and sky court, are often used by architects,[4] however, in this classification these are subsumed into the identified types. This section of the paper will define the physical forms and characteristics of these five types.

VERTICAL SOCIAL SPACE TYPES	KEY PHYSICAL CHARACTERISTICS
1. Social Roof Space	Space at roof level of a building or building complex for a wide variety of functions.
1.1 Rooftop	Space located on the top of a building or building complex, whether internal or external; some rooftops are also outdoor spaces at roof level of a lower volume of a building.
1.2 Elevated podium roof	Space on a raised base or podium of a building or building complex.
1.3 Void roof space	A break in the continuity of a building volume, often designed as a hollow or interstitial space.
1.4 Continuous roof	A series of (often gently rising) pedestrian surfaces as a roof space, generally connected directly with the ground level.
2. **Raised Urban Platform**	Raised external level or platform for promenading or leisure, generally without the space below filled in.
2.1 Horizontal elevated deck	External elevated floor slab, one part of the rooftop, some open pedestrian skybridges, and raised streets or squares.
2.2 Horizontal protruding deck	Raised platform protruding from a building, often supported by a complex structure.
2.3 Raised urban podium	Platform raised above the ground level, in an urban project.
2.4 Stepped or slopping urban space	External raised area as a stepped or sloping space, used for movement and social activities.
3. Skybridge	Raised pedestrian or bicycle bridge that can be used for social activities, whether enclosed, covered or open-air.
3.1 Link between buildings	Overhead deck or bridge-like structure connecting two or more buildings.
3.2 Urban skybridge	Pedestrian or bicycle skyway built over an urban space at the ground level.
3.3 Infill skybridge	Sky bridge between two parts of a building.
4. Vertical Atrium	Atrium located at the higher levels of a building, often regarded as an “interior skycourt”.
4.1 Side	Atrium situated at the perimeter of a building, permitting more natural light and ventilation to penetrate deeper into the structure.
4.2 Central	Atrium located in a central position off the ground, often difficult to view from outside.
4.3 Dispersed	A series of atria distributed in different locations throughout a building.
5. Other Raised Indoor Spaces	Social spaces in a building, such as an elevated platform, indoor skybridge, stepped space in an atrium, social space in a shopping mall or library, sky bar, or indoor observation deck.

Table 1. Vertical social space types and their key physical characteristics

Social roof space

The roofscape of urban buildings is an often-underused space that has great potential as a public and social space.[5] This use of roofs as social spaces emerged in the early 20th century when they began to be incorporated into high-rise structures.[6] Indeed, the fifth point advanced by Le Corbusier advocates

the roof garden or roof terrace as a means to supplement open recreational spaces on the ground consumed by the building. This is articulated in Le Corbusier's seminal project the Unité d'Habitation, completed in 1952 in Marseille, France, where a vertical mixed-use community includes a communal roof terrace to establish and represent the public realm. Frampton describes how "*Uniting its 337 dwellings with a shopping arcade, a hotel and a roofdeck [with] a running track, a paddling pool, a kindergarten and a gymnasium, the Unité was … a 'social condenser'.*"[7] Under the influence of Le Corbusier, the "liveable" roof became one of the most powerful symbols of the Modern Movement.[8]

The roof as a social space is not, however, a homogenous type and the role played by the roof shows a multifaceted character for diverse urban environments. It is post-industrial era that finally contributed to the real revolution in roofs and the roof terrace being served as a new spatial type with growth public and social potentials is gaining popularity among architects around the world.[9] Based on a wide range of projects that have emerged across the world, this type can be considered as a space at the roof level of a building or building complex for a wide variety of functions with four distinctive sub-types: rooftop; void roof space; elevated podium roof; and continuous roof.

The rooftop sub-type refers to a social space located on the top of a building or building complex which could be covered as an internal or semi-internal space, such as the Sky Garden at 20 Fenchurch Street and Crossrail Place Roof Garden in London, UK, or uncovered as an external space, such as the Skypark at Marina Bay Sands in Singapore, and Salesforce Park in San Francisco, US. Some rooftops are also outdoor spaces at the roof level of a lower volume of a building, such as the roof garden at the Library of Birmingham, UK, the Interlace in Singapore, and the LEGO House in Billund, Denmark. The diagrams in terms of this sub-type are shown in Figure 1.

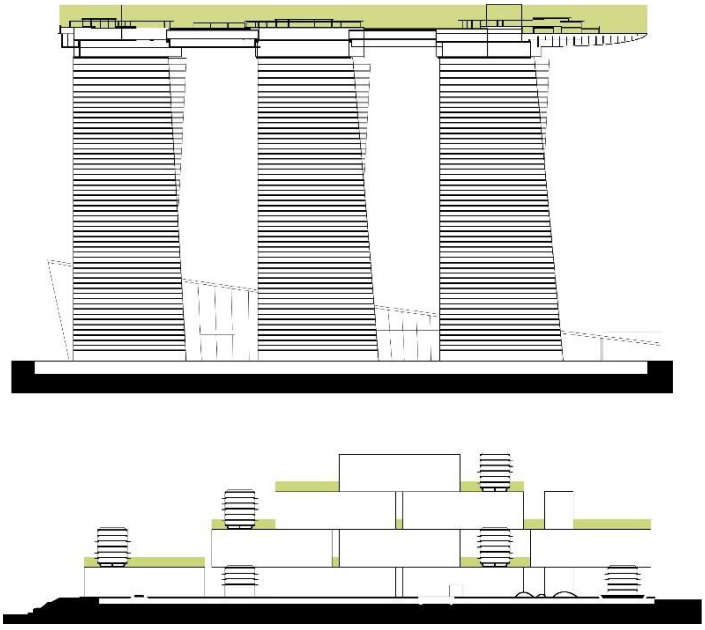

Figure 1. Top: the Skypark at Marina Bay Sands in Singapore; bottom: The Interlace in Singapore

As illustrated in Figure 2, the void roof space sub-type is a break in continuity of a building volume, such as the "hollow" space of the roof terrace in the Mirador Building in Madrid, Spain, the "interstitial" space at One Central Park in Sydney, the Elbphilharmonie in Hamburg, Germany, and the Tsinghua Ocean Centre in Shenzhen, China. The elevated podium roof sub-type consists of space on a raised base or podium of a building or building complex, such as the garden terraces at Parkroyal on Pickering in

Singapore, the Metropol Parasol in Seville, Spain, and the Shenzhen Stock Exchange in Shenzhen, China.

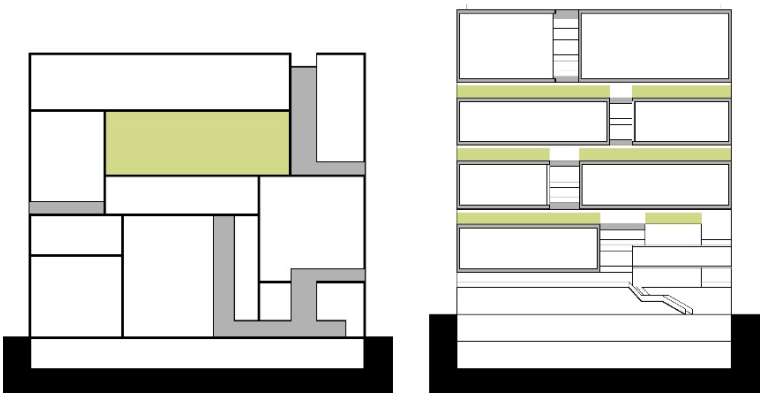

Figure 2. Left: Mirador Building in Madrid, Spain; right: Tsinghua Ocean Centre in Shenzhen, China

Additionally, as the Figure 3 shows, the provision of public space within built forms as the continuous roof sub-type can provide a series of (often gently rising) pedestrian surfaces connecting directly with ground level and create dynamic environments for human activity and interaction, such as the Norwegian National Opera and Ballet in Oslo, Norway, the Yokohama International Passenger Terminal in Yokohama, Japan, the 8 House in Copenhagen, Denmark, Namba Parks in Osaka, Japan, Shenzhen Sea World Culture and Arts Centre in China, and the Sliced Porosity Block in Chengdu, China. Finally, it should also be noted that some projects are hybrids with a combination of several social roof space sub-types. A prime example is the Sliced Porosity Block in Chengdu, China – as illustrated in Figure 4, containing void roof spaces formed into three valleys and the elevated podium roof sub-type. The three elevated podium roof levels can also be regarded as the continuous roof sub-type due to the great connectivity with the ground level and with each other by utilising steps, ramps, and escalators.

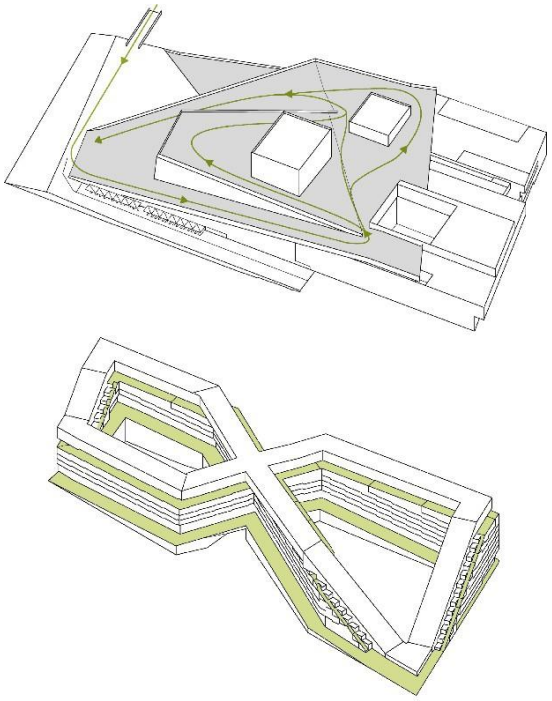

Figure 3. Top: Norwegian National Opera and Ballet in Oslo, Norway; bottom: 8 House in Copenhagen, Denmark

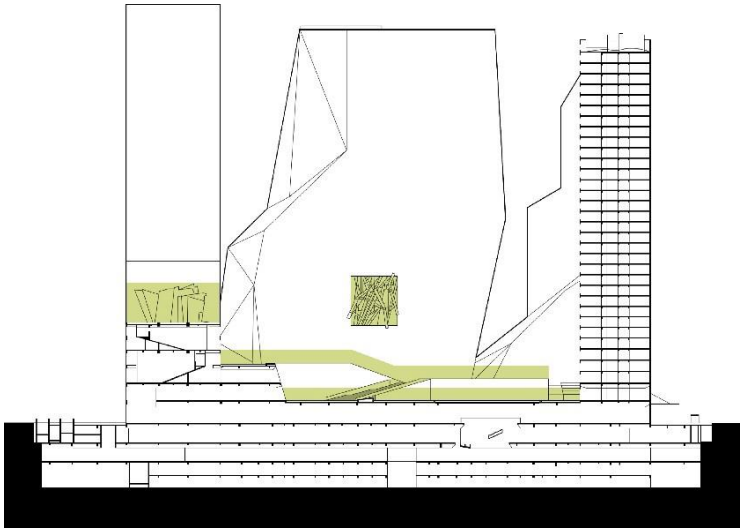

Figure 4. Sliced Porosity Block in Chengdu, China

Raised urban platform

In the context of vertical social spaces, the raised urban platform can be considered as "*a raised external level or platform …for promenading or leisure*", [10] generally without the indoor space below filled in. The raised urban platform type involves places of social activity and has four sub-types: the horizontal elevated deck; the horizontal protruding deck incorporated into a building; the raised urban podium; and the stepped or slopping urban space.

Recent years have seen an increasing number of influential buildings and urban projects utilising this type. Some include horizontal protruding decks, such as the rectangular deck at One Central Park,

Sydney, Australia, external elevated floor slabs as the horizontal elevated deck sub-type such as the America's Cup Building in Valencia, Spain – as illustrated in Figure 5, and Sino-Ocean Taikoo Li in Chengdu, China. The horizontal elevated deck sub-type can also refer to one part of the rooftop, such as the observation deck at Marina Bay Sands in Singapore; some open pedestrian skybridges such as the Pinnacle@Duxton in Singapore, and the Coal Drops Yard in London, UK; and even a raised avenue and square such as Shenzhen Bay Avenue in Shenzhen, China, and the Barbican Estate in London, UK. These urban platforms can also be urban podiums raised above the ground level such as Goods Line in Sydney, Australia, and the Plaza de Santo Domingo in Madrid, Spain. There are also a number of stepped or slopping urban spaces used for movement and social activities, such as "The Amphitheatre" in Zaryadye Park, Moscow, Russia, and The Stairs to Kriterion in Rotterdam, Netherlands.

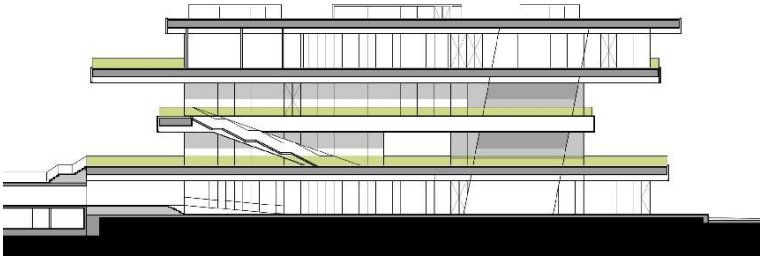

Figure 5. America's Cup Building in Valencia, Spain

Skybridge

The skybridge is fundamentally a raised pedestrian and bicycle bridge that can be used for social activities, whether enclosed, covered or open-air. The skybridge is not a new concept with early 20th century futuristic visions of a "vertical city" often featuring raised walkways and transport connections.[11] Indeed, multi-level systems of transportation with elevated footbridges featured heavily in Harry M. Pettit's visionary drawing "The Cosmopolis of the Future" (1908) and multi-level circulation systems dominated by transport were portrayed in Richard Rummell's "Future New York" (1911), both of which illustrated Moses King's series of books *King's Views of New York*.[12] Such visions also featured in Italian Futurist Antonio Sant'Elia's *Città Nuova* (1914), American architect Harvey Wiley Corbett's urban depiction "City of the Future" (1913), and Hugh Ferriss' seminal book *The Metropolis of Tomorrow* (1929).[13] In addition to print and art, the skybridge also featured heavily in early films, such as Fritz Lang's *Metropolis* (1927), which envisaged a modern utopia with huge bridges between high-rise buildings. [14] These visions influenced a number of high-rise projects that incorporated skybridges, such as the Umeda Sky Building in Osaka, Japan, the Petronas Towers in Kuala Lumpur, Malaysia, and the Shanghai World Financial Centre, in Shanghai, China.

Skybridges can be designed at any level of tall buildings and Wood suggests that what "*started at 10m elevation in cities such as Hong Kong, Minneapolis or Calgary [can] occur at 100m, or 200m, in those cities and others?*".[15] Wood also suggests that the skybridge can be designed as a "*new public zone at height*" containing diverse functions such as "*retail, arts and leisure facilities*" to enhance horizontality in the "vertical city".[16] Steven Holl probably provided a feasible solution in the Linked Hybrid complex in Beijing of China for the idea of Wood. In the project, the eight residential towers and a hotel tower are connected by a series of multifunctional skybridges, containing a swimming pool, fitness room, café and gallery, to create "social condensers" for residents and visitors.[17] For the skybridge type, the Linked Hybrid can be considered as the "link between buildings" sub-type, which refers to the overhead deck or bridge-like structure connecting two or more buildings. The model of the project is shown in Figure 6.

Figure 6. Model of the Linked Hybrid, Beijing, China

Other typical examples of this sub-type include the Pinnacle@Duxton in Singapore, and the Petronas Towers in Kuala Lumpur, Malaysia. The two skybridges at the top of the Shanghai World Financial Centre link two parts of the same building thereby acting as the infill for a void, which is typical of the "infill skybridge" sub-type. In addition, as the Figure 7 shows, the urban skybridge sub-type refers to raised pedestrian or bicycle skyways. Some representative projects of this sub-type are the elevated park High Line in New York, Seoullo 7017 in Seoul, Korea, the "Floating bridge" in Zaryadye Park in Moscow, Russia, the Central-Mid-levels Escalator in Hong Kong, China, Lujiazui Circular Pedestrian Bridge in Shanghai, China, and the Xiamen Bicycle Skyway, China.

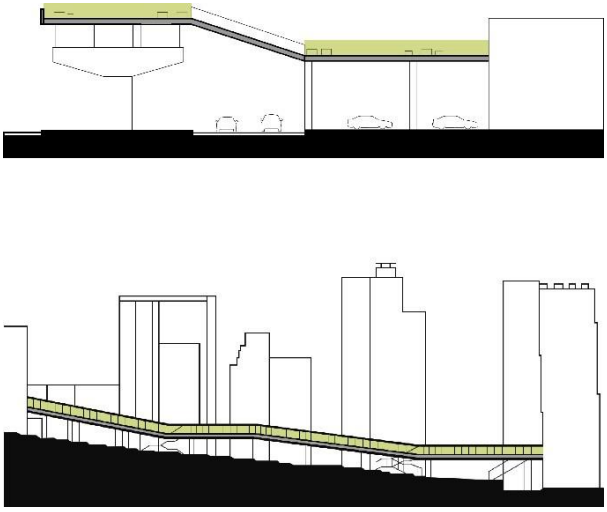

Figure 7. Top: Seoullo 7017 in Seoul, Korea; bottom: Central-Mid-levels Escalator in Hong Kong

Vertical atrium

The atrium is not a new spatial type, with grand entrance spaces, central courts and sheltered semi-public areas being traced back to about two thousand years ago. The modern atrium, which includes covered courts, arcades, gallerias and winter gardens, came into use in western countries in the 19th century due to advances in iron and glass manufacturing techniques developed during the Industrial Revolution.[18] Over the last decades, there have seen an increasing number of atrium sub-types emerging in large-scale buildings with technological advances in contemporary construction and the innovations in architectural design. Indeed, unlike traditional atria, these can be stacked, off the ground, and are not always open through to roof level.[19] Located at the higher levels of buildings, vertical atria can be

regarded as an "interior sky court" of more than two storeys. Whilst providing important opportunities for social interaction these atria also permit more natural light and ventilation to penetrate further into the indoor spaces of the building.[20]

Many vertical atria exist as interior sky courts situated at the side of a building, such as the stacked atria of the Commerzbank Headquarters in Frankfurt, Germany – as illustrated in Figure 8, and the Shanghai Tower, China. Others can be in a central position off-the-ground, such as at the Library of Birmingham, UK, Stuttgart City Library, Germany, and the New York Marriott Marquis hotel, US. A third sub-type involves a series of dispersed atria in different locations through a building complex such as at the Barnard College Diana Centre in New York, US, and the MIT's Simmons Hall in Cambridge, US.

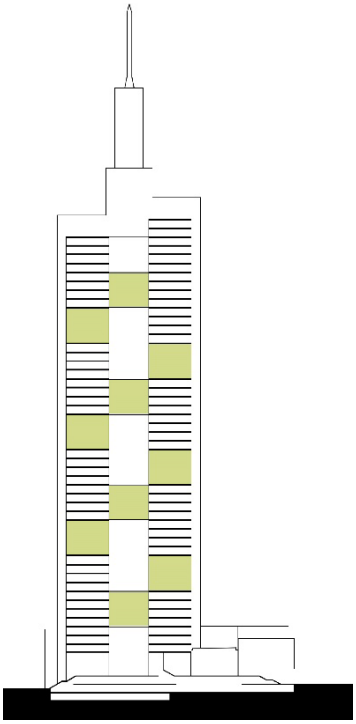

Figure 8. Commerzbank Headquarters in Frankfurt, Germany

Other raised indoor spaces

In addition to the four types of vertical social spaces mentioned above, there are a number of other raised social spaces in buildings, such as: social spaces in shopping malls or libraries; elevated social spaces in an atrium such as elevated platforms; indoor skybridges; indoor stepped spaces; sky bars; and indoor observation decks. There are many projects with raised indoor spaces that don't neatly fit into the main types of vertical social spaces. These include the monumental stair served for movement and gathering in the atrium of 41 Cooper Square in New York, US, the elevated platform used for social interaction at the Diamond Library in the University of Sheffield, UK, the innovative shopping spaces at Coal Drops Yard in London, UK, the sky bar at the Elbphilharmonie Hamburg in Germany, and the highest observation deck in the world at the Shanghai Tower, China.

This section has provided a summary of the five types of vertical social spaces classified by this research including their key characteristics and examples of particular projects that exemplify the various approaches to creating innovative public and social spaces in highly urbanised and dense cities.

CONCLUSIONS: A NEW SPATIAL TYPOLOGY IN THE SKY?

Cities across the world, particularly those in rapidly developing and urbanising countries, are experiencing unprecedented changes in the early stages of the 21st century, which are leading to innovative solutions in terms of their architecture, planning, and urban design. Indeed, the emergence of "vertical" spaces as new non-traditional solutions are adding to the public realm offer within highly urbanized and dense cities. Given their growing popularity and importance, this paper has focused on the classification of the vertical social space typology from the perspective of their physical forms and identified five distinct types: the social roof space; raised urban platform; skybridge; vertical atrium; and other raised indoor spaces. The typological analysis presented here provides an approach to understanding the scope of "vertical social spaces" within the contemporary city.

Given their physical relationship to traditional urban spaces, it is a challenge for many vertical social spaces to provide comprehensive connection with the ground. However, in addition to some sub-types within urban projects such as the "urban skybridge", "raised urban podium", and some included in the "horizontal elevated deck" sub-type, the architectural examples with the greatest connectivity are often the "continuous roof" sub-type. This sub-type has the ability to offer flexible and multifunctional pedestrian surfaces that are physically connected with the ground, such as the Norwegian National Opera and Ballet in Oslo and the Yokohama International Passenger Terminal, Japan. Such spaces achieve a continuous flow of circulation where the aerial promenade blurs the boundaries between the city and the building and is "*no longer over our heads, but under our feet.*"[21] Such projects can contribute to the diversity of uses and users over time, and it can strengthen the social connections for a lively city when more people are invited to walk and stay in these vertical realms.[22] However, the challenge of connecting urban spaces that are not at ground level needs to be considered from multiple dimensions if they are to become truly integrated into cities, such as the physical, perceptual, and operational dimension. It is important that as new public realms emerge, whether these be at ground level, above ground, or indeed below ground, we continue to carefully monitor, analyse and assess their performance and suitability to meet the needs of changing societies in all contexts.

NOTES

[1] United Nations, Department of Economic and Social Affairs, Population Division, *World Urbanisation Prospects: The 2018 Revision* (New York: United Nations, 2019), xix.
[2] Jason Pomeroy, "Room at the Top—The Roof as an Alternative Habitable/Social Space in the Singapore Context," *Journal of Urban Design* 17(3) (2012): 418–419.
[3] Jason Pomeroy, "The Sky Court: A Viable Alternative Civic Space for the 21st Century?" *CTBUH Journal* 3 (2007): 18–19; Pomeroy, "Roof at the Top," 418–423; Jason Pomeroy, *The Skycourt and Skygarden: Greening the Urban Habitat* (London: Routledge, 2014), 30–33; Im Sik Cho, Chye Kiang Heng and Zdravko Trivic, *Re-Framing Urban Space: Urban Design for Emerging Hybrid and High-Density Conditions* (New York: Routledge, 2016), 8–27; Yuri Hadi, Tim Heath and Philip Oldfield, "Gardens in the Sky: Emotional Experiences in the Communal Spaces at Height in the Pinnacle@Duxton, Singapore," *Emotion, Space and Society* 28 (2018): 104–106.
[4] Pomeroy, *The Skycourt and Skygarden*, 36–71.
[5] Gustavo Ambrosini and Guido Callegari, "Roofscapes Redevelopment Strategies: An Introduction," *Shijie Jianzhu* (*World Architecture)* 11 (2017): 19.
[6] Pomeroy, *The Skycourt and Skygarden*, 31–32.
[7] Kenneth Frampton, *Modern Architecture: A Critical History* (London: Thames & Hudson, 2007), 227.
[8] Gustavo Ambrosini, "The Inhabitable Roof: Paradigms in Architecture," *Shijie Jianzhu* (*World Architecture)* 11 (2017): 13.
[9] Zhang Li, "Over Our Heads or Under Our Feet," *Shijie Jianzhu* (*World Architecture)* 11 (2017): 9.
[10] Nikolas Davies and Erkki Jokiniemi, *Dictionary of Architecture and Building Construction* (Oxford: Architectural Press, 2008), 379.
[11] Stephen Graham, *Vertical: The City from Satellites to Bunkers* (London: Verso, 2016), 220.
[12] Antony Wood and Daniel Safarik, "Skybridges: A History and a View to the Near Future," *International Journal of High-Rise Buildings* 8(1) (2019): 5, accessed July 25, 2020, doi: 10.21022/IJHRB.2019.8.1.1.
[13] Antony Wood, "Pavements in the Sky: The Skybridge in Tall Buildings," *Architectural Research Quarterly (ARQ)* 7(3/4) (2003): 326, and Wood and Safarik, "Skybridges," 6–7.
[14] Wood, "Pavements in the Sky," 326.
[15] Ibid., 331.
[16] Ibid., 329.
[17] Steven Holl, *Urbanism: Working with Doubt* (New York: Princeton Architectural Press, 2009), 137.
[18] Richard Saxon, *Atrium Buildings: Development and Design* (London: Architectural Press, 1986), 1.
[19] W.Y. Hung and W.K. Chow, "A Review on Architectural Aspects of Atrium Buildings," *Architecture Science Review* 44(3) (2001): 286.
[20] Pomeroy, *The Skycourt and Skygarden*, 41.
[21] Zhang, "Over Our Heads," 9.
[22] Jan Gehl, *Cities for People* (Washington: Island Press, 2010), 208.

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INTERDEPENDENCE COSTS, LAND USE, INEFFICIENT RESOURCE ALLOCATION AND UNDERDEVELOPMENT

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INTRODUCTION

The view that massive housing construction is the starting point of economic growth and development has been in the literature since the end of WW II when nations were faced with the challenge of providing accommodations for returning veterans. The period also witnessed many nations making preparations for independence from their colonial masters. Development models were needed for the new nations. The debate has continued over seven and a half decades. Some nations that gained independence developed and others remain underdeveloped, yet, there is no consensus among social researchers and economists about the significance of land use and housing in the process of economic development.

Arku (2006) partitions the discussion into a historical perspective and categorizes the debate into opponents, moderates, and proponents.[1] The opponents argue that the concept of housing being considered a source of development was entirely in contrast to the fundamental economic theory. Development in the eyes of earlier twentieth-century economists arises from industrialization through capital accumulations[2], and any use of capital for consumer items such as housing would tie up capital meant for economic growth. To these economists, housing is a "non-productive capital durable" and a "social expenditure" that usurps capital available for industrialization.[3]

The proponents are of the view that instead of housing being regarded as a mere "bi-product" or a consequence of economic growth, it should be viewed as a precursor or prerequisite for development and growth.[4] Furthermore, housing investment has a far-reaching impact on economic development as it creates employment, income, savings, stable settlement, and lessens absenteeism.[5] Thus, housing improvement must not wait until economies attain higher income as opponents of housing investment imply.[6]

The economic significance of housing construction is evident in Southeast Asia countries (Singapore, Hong Kong, South Korea, and Taiwan), who recognized the relevance of residential housing for the masses all through the last six decades and these countries are currently among high-income nations.[7] Chen, Guo, Zhu (2011) carried out empirical studies, using panel data, and found a stable long-run relationship between housing investment and GDP growth in China.[8] Anna Tibaijuka (2013), in her "*Building Prosperity: Housing and Economic Development,"* pursues the debate a little further by noting that housing is almost a public good and regards housing construction to be a spark for national economic development.[9]

The Nature of the Good

Researchers who disagree that land use and housing construction stimulate economic development do so under the premise of the neoclassical economic theory. Under this conceptualization, housing is modeled as a private consumer product such as clothing, food, furniture, and automobile. It is a private good because it is thought to possess the economic attributes of a private good. These are rivalry and excludability characteristics. The private good rivalry characteristic lies in the fact that once purchased, the quantity of housing available for sale is reduced. While the excludability attribute of housing means that houses provide shelter only to the owner or renter and no one else outside the home simultaneously enjoys the accommodation provided by the house. Under this theoretical framework, housing is a private good, and the ownership depends on income and price.

The question now is based on the nature of the good, does housing as a consumer good emit social cost (spillover or negative externalities) on others in the same vicinity, and does it promote social well-being to individuals in the same neighborhood (positive externality)? In order to answer these questions, we must consider not only the structure of the house as a shelter, but we must also give factual details of the architectural design of modern houses. It is also imperative to take into account the scale economies in the provision of the shared complementary private and public goods. A home in the form of a single-family, multiple-family, or apartment has more public good attributes than other private consumer goods such as clothes, food, automobile and furniture. Therefore, if so many quasi-public goods are complementary to housing, it becomes a theoretical inadequacy to model a house similar to private consumer goods.

Whether or not general housing construction is the starting point of economic development depends on the definition of a house. While opponents of the debate believe housing is a consumer good based on mainstream economic modeling, nonetheless, supporters of the hypothesis that general housing construction is the foundation of industrialization and development have not provided sufficient arguments within economic theories to support their claims. The purpose of this paper is to bridge the gap between opponents and proponents of the debate using the relevant resource reallocation theory. The goal is to improve on the indispensability of land use and housing in the process of economic development. Thus, a broadly defined housing scheme should be accepted as the heartbeat of resource reallocations and an engine of economic growth.

THE HOUSING MODELS

Algebraically, individuals maximize their utility (pleasure or well-being) in the consumption of housing (H) and composite goods denoted by (C). For individuals a and b whose houses are standing on adjacent land in the same community, their consumption bundle could be expressed in two different models. The first is where housing and all its amenities are perceived to be a private consumer good, which makes households a and b independent of one another. The second model identifies interdependency between the neighbors a and b.

Housing as an Independent Private Consumer Good

$$U^a = U^a(H^a, C^a) \quad and \quad U^b = U^b(H^b, C^b) \tag{1}$$

Subject to the constraint

$$I^a = p_h H^a + p_c C^a \; and \; I^b = p_h H^b + p_c C^b \tag{2}$$

The Langrage function becomes:

$$\int_* = U^a(H^a, C^a) + \lambda(U^b - U^b(H^b, C^b) + \Pi[I^a + I^b - p_h(H^a + H^b) - p_c(C^a + C^b)] \tag{3}$$

where p_h and p_c are prices of *housing (H)* and *composite* goods *(C)*, respectively. I^a and I^b are incomes for households *a* and *b* and in stratified income communities; they are in the same income group. The first order condition and subsequent algebraic manipulations, efficiency requires that

$$[\delta U^a/\delta H^a]/\ \delta U^a/\delta C^a = [\delta U^b/\delta H^b]/\ [\delta U^b/\delta C^b] = p_h/p_c \quad (4)$$

which could also be expressed as $(MU_H{}^a)/(MU_C{}^a) = (MU_H{}^b)/(MU_C{}^b) = p_h/p_c$. These expressions are positive. In other words, trade efficiency requires that the marginal rate of substitution (MRS) between *housing (H)* and *composite* goods (*C*) are equal for both consumers. In this case, for consumers *a* and *b*,

$$MRS^a{}_{HC} = MRS^b{}_{HC} = p_h/p_c \quad (4a)$$

For the entire community, given production efficiency, social efficiency dictates that

$$MRS_{HC} = MRT_{HC} \quad (5)$$

where the term MRT_{HC} represents the marginal rate of transformation between *housing (H)* and *composite goods (C).* That is, the tradeoff between a society's choice to construct housing or produce composite goods. This is the simple opportunity costs of *housing* expressed in terms of *composite* goods or vice versa.

Housing as an Interdependent Economic Good

In Equations (1) through (5), there is a price mechanism that allocates housing and the composite goods, making housing an ordinary consumer item. We could have another model for households *a* and *b.*

$$U^a = U^a(H^a, C^a) \quad and \quad U^b = U^b(H^b, H^a\ C^b) \quad (6)$$

Equations (1) and (6) are similar but different in that U^b, the well-being of the second household, is affected by the housing choice of the first household H^a. Thus, there is a third item (H^a) in the utility function of consumer *b*, U^b. This is the externality item or a spillover effect oozing from the housing behavior of household *a*.

The constraint function Equation (2) remains the same and the Langrage becomes

$$\int_{\kappa} = U^a(H^a, C^a) + \lambda(U^b - U^b(H^b, C^b, H^a) + \Pi[I^a + I^b - p_h(H^a + H^b) - p_c(C^a\ C^b)] \quad (7)$$

The first order condition and exchange result from (7) becomes

$$[\delta U^a/\delta H^a]/\ \delta U^a/\delta C^a + [\delta U^b/\delta H^a]/[\delta U^b/\delta C^b] = p_h/p_c \quad (8)$$

As compared to Equation (4), $[\delta U^a/\delta H^a]/\ \delta U^a/\delta C^a] > 0;\ [\delta U^b/\delta H^a]/\ [\delta U^b/\delta C^b] < or > 0$ depending if household *a's* housing behavior $(\delta U^b/\delta H^a)$ are harmful $[(\delta U^b/\delta H^a)$ is negative] to *b* or beneficial $[(\delta U^b/\delta H^a)$ is positive] to household *b*. Let the second term of (8), $[\delta U^b/\delta H^a]/[\delta U^b/\delta C^b] = \Omega$. The exchange result between household *a* and *b* becomes:

$$MRS^a{}_{HC} + \Omega \neq MRS^b{}_{HC} \quad (8a)$$

Equation (4a) is no longer true as indicated in Equation (8a); the marginal rate of substitution between the households and the top level outcome, the society's marginal rate of transformation are no longer equal as indicated in Equation (9) below.

$$MRS_{HC} + \Omega \neq MRT^b{}_{HC} \quad (9)$$

The symbol Ω in Equation (9) mostly appears in environments as a spillover. Economists refer to it as externalities. Coase (1960) identifies it as a social cost[10]; Buchanan and Tullock (1962) calls it interdependence costs[11]; President Trump refers to countries with externalities as "shitholes.[12]" These externalities cumulate to blights. Investors would not move capital to areas that are saturated with blights.[13] It affects every economic agent, including individuals and firms. Externalities result from improper land use and poorly defined housing.

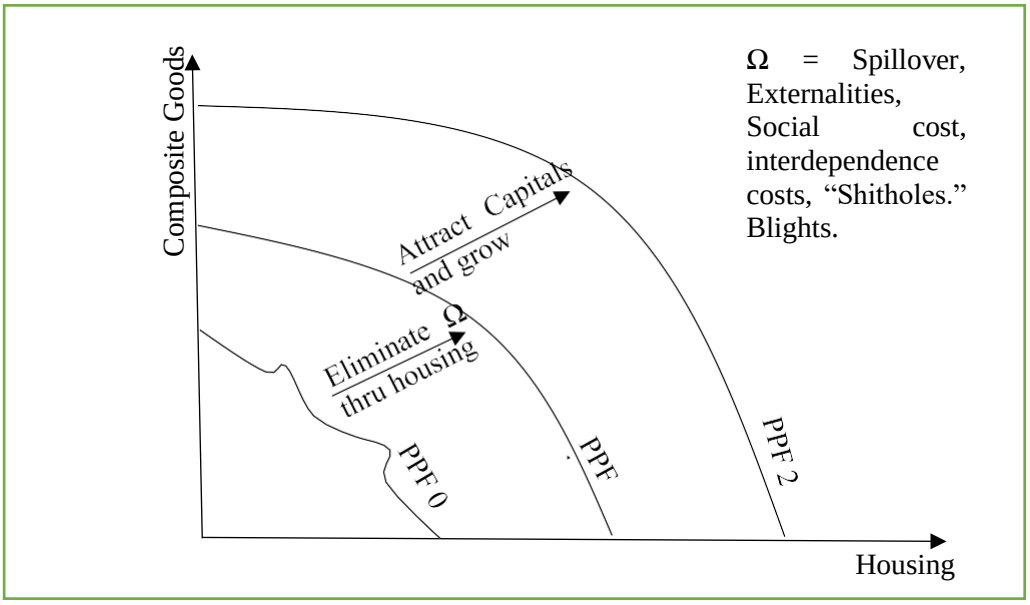

Figure 1. Externalities and Production Possibility Frontiers

The market cannot allocate externality because it has no price. The government, as representative of the public, eliminates externalities through a proper public policy on the use of land. Why land? Because land is a significant economic resource, and externalities occur owing to the sharing of land.

As seen in Figure 1, many nations of the world are underdeveloped because they are stuck on PPF0. They cannot move to their initial production frontier (PPF1) due to the presence of externalities—inefficient resource allocations. Reallocation of resources requires inclusive housing programs along with essential complementary quasi-public goods, as described in the next section. This would move the societies to efficient PPF1 and attract capital for growth and development (PPF2). PPF0 has an unusual shape because it may not comply with the concept of opportunity cost.

The practice in underdeveloped countries suggests that land use and housing construction are entirely within the desire of the individual; people build as they deem fit with complete disregard to the interdependence costs associated with the use of land and housing. This practice corresponds to the view that housing is a consumer good and entirely economics.

However, in developed countries, whether in rural areas or big cities, developers authorized by the government in the form of permits construct rows and miles of housing in different sizes and shapes for people to buy according to their income. As such, we have income-stratified communities in many developed nations. The land is zoned into industrial, commercial, residential, public parks, schools, etcetera. Residential properties are broken into single and multiple family units as well as apartments. These forms of land use—collectively provided housing scheme—comply with the view that land use and housing development creates the momentum for economic development is equivalent to the conclusion by Enajero (2018) that many, if not all, human activities are both political and economics (public choice).[14]

In other words, free-market based on individual choice is the first best economic resource allocative mechanism. However, on several human activities such as land use and housing, the market mechanism

fails in the efficient allocation of resources. When this occurs, the government, an agent of public choice, implements the reallocation of resources—the second best solution.

HOUSING COMPLEMENTARY GOODS

In order to determine whether or not housing constitutes the starting point of economic development, we would have to answer the question, what is a house? There are private and public goods, integral to housing that yield economies of scale. Some private goods include internal plumbing for drinking water and sewage, electricity, and gas supply. These are known as utilities. Public or collectively consumed goods complementary to housing include walkways, streets, safety (fire and police protection), garbage collection, sanitation, street lights, parks, library, and K–12 education. In fact, in choosing a community, potential home buyers lay more emphasis on the quality of the complementary goods than the housing structure.

The efficient use of land by zoning requires residential housing standing in rows or circles, on streets connecting roads and avenues leading to the highways. Revenues generated from taxes imposed on housing are used to finance public goods. Investments in these private and public goods complementary to housing exploit scale economies and would not occur without a well-coordinated neighborhood and regional planning, thus, recognizing community interdependence. While the provision of these housing amenities attracts tourism and capital, the absence creates blights (Ω) that repel the capital needed for industrialization.

To internalize externalities (spillover effect) as indicated by omega sign Ω in Equation (9), and provide complementary public goods, public choice prevails over individual choice in housing construction. Collectively provided housing is a development of its own in the locality. It is a "catalyst" for faster national economic development because such practice creates a conducive environment and provides the infrastructure for capital productivity and profitability.

Housing and Human Attributes

Besides, the architectural design of the modern ideal home portrays human dignity. At the entrance is a place for visitors to hang a jacket, a hallway leading to the family or living room (parlor), a space for the lady of the house, kitchen, dining room, nursing room, bathroom, and toilets. Others may have a home office, and balcony.[15] All members of the household have separate rooms for privacy, and all gather in the dining room and parlor for meals and family meetings, respectively. Thus, the "idealized" and standardized family home portrays economic, aesthetic, sanitary, material, spiritual, and teaches morality and patterned behavior.[16] Attributes that display human virtues are necessary social assets.[17]

The human aspect brought about by homeownership is numerous. Housing encourages the household to accumulate savings as the value appreciates over time. These savings are carried forward from generation to generation. The households indirectly learn low time preferences, the human attributes to postpone or spread consumption to the future. The opportunity cost of wealth creation is recognized. It empowers the households to be part of a society, and the tendencies to engage in civil strife and rebellious destruction of properties are reduced.[18] Mass housing constructions narrows the inequality gap between the wealthy and the poor in any society.

Macroeconomic Ties

Housing supply and demand are accompanied by macroeconomic consequences via the financial sectors. In many economic systems, the proportion of consumer spending carries about 70% of the gross domestic product (GDP). Most of this is related to housing and housing-related expenditures. The

mortgage markets serve as solid support to the entire financial market. In today's economies centered on money and banking, the role of mortgages in the financial system cannot be over-emphasized.
Above all, housing and the complementary amenities that completely define a home require low-skilled labor, domestic materials, and low technology that are in abundance in underdeveloped countries. Housing and affiliated goods do not require heavy machinery and high technology.[19] Thus, housing sets the stage for economic development.

CONCLUSION

For the past 75 years, there have been debates concerning the impact of massive housing construction on economic development. Supporters think housing should be viewed as a precursor or prerequisite to economic development and growth. Opponents believe housing is a "non-productive capital durable" and a "social expenditure" that usurps capital available for industrialization. This latter group views and models housing similar to automobiles, clothes, food, furniture, and other private goods.
This paper broadly defines a "modern house" to include complementary private and quasi-public goods. The absence of these private and public goods that are integral to housing results in externalities. The market fails in the allocation of externalities, and the reallocation function of a government necessitates the elimination of externalities by proper land use and housing construction. Therefore, the provisions of these quasi-public goods along with housing eliminate externalities and prepare a nation for capital inflow, industrialization, and development.
It is also shown that housing is much more than the physical structure that provides shelter. It reshapes the household to be an economic agent. Housing encourages the household to accumulate savings as the value appreciates over time. These savings are carried forward from generation to generation. The households indirectly learn low time preferences, the human attribute to postpone or spread consumption to the future. Homeownership also empowers the households to be part of a society. The spirit of empowerment lessens the tendency to engage in civil strife, and rebellious destructions of properties. Moreover, since the residents of collectively provided housing enjoy similar public goods, social inequality between the rich and the poor is reduced. Thus, the nature of the good along with the complementary local public goods make housing the engine of development.

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COMPLEXITY IN A METROPOLITAN REGION THROUGH THE RUHR 2010 CULTURAL CAPITAL OF EUROPE

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CHANGE IN THE RUHR AREA

There are few regions in Germany that have changed as much in the past century as the Ruhr area. This area was once known for its heavy industry and polluted air revolving around coal and steel since 1802 and dominated by heavy industry with collieries, machine rooms, furnaces, canals, railroads and mining communities. In the course of a structural transformation the area has become more and more a services region since the 1960s. Several campaigns and impulses to transport the modern image of the Ruhr Area were carried out, e.g. the movie "The Ruhr Area. A Powerful Piece of Germany" (Das Ruhrgebiet. Ein starkes Stück Deutschland) and the movie "The pot is cooking" (Der Pott kocht) 1985 – 1998. The Emscher Park International Building Exhibition (IBA) took place from 1989 to 1999 and gave impulses to a new building initiative and to the conversion of several industrial sites. The former home of coal and steel has increasingly developed into a service and cultural metropolis.

The Ruhr area has around 5.3 million inhabitants and is the third biggest agglomeration in Europe. 11 % have a migration background from 180 nationalities. 42% of the migrants are of Turkish origin.

On its 4435 square kilometres one finds 200 museums, 100 cultural centres, 120 theatres and 3500 industrial landmarks.

The end of the industrial monostructure weakened the Ruhr area, but also triggered a wide-ranging structural change that made the once gray area greener. The founding and expansion of several universities, the settlement of new industries and renaturation projects took place. the successes are impressive, but not big enough to make the agglomeration competitive. Too little purchasing power, too few academics and founders, too many early school leavers, decreasing human resources, infrastructural deficits and traffic problems are everyday problems here.

CONVERSIONS OF INDUSTRIAL SITES

Five examples of conversions and reuses of industrial sites are being showcased here, the former places of work now serve as cultural institutions.

Landschaftspark (landscaped park) in Duisburg

Originally an ironworks, today this park in Duisburg-Nord is one of the most important industrial monuments in Europe. Now the spaces are used for relaxing, sports, concerts, exhibitions, readings, cinema events, political demonstration, wine tastings, to name a few. The climbing garden of the German Alpine Association is the largest outdoor climbing garden in Germany. Europe's largest indoor diving pool is located in the former gas tank. In the evening, you can see the light installations by

London-based artist Jonathan Park, who provides colourful effects in his illumination of the chimneys and industrial facilities.

Figure 1. Landschaftspark Duisburg

Gasometer (gas tank) in Oberhausen

Built in the late 1920's, Europe's largest disc-type gas tank is an impressive reminder of the heavy industry that characterized the Ruhr for more than a century. It functioned according to a principle where gas which was to be stored was injected at the bottom into the interior chamber and taken out again at a different point. Today the Gasometer provides the unique frame for cultural experiences of various kinds. Exhibitions, theatre and music are made viable. As a venue it has inspired artists of international relevance. Christo and Jean-Claude realized their project Big Air Package there in 2012, where they wrapped the inside of the enormous gas tank. A glass panorama lift offers the opportunity to travel up to just under the roof of the Gasometer or up onto the roof on the outside which can also be reached on foot via 592 steps. A panoramic view of the western Ruhr area can be enjoyed which, during clear weather, extends over 35 kilometers.

Figure 2. Gasometer Oberhausen

Zeche Zollverein (colliery) in Essen

The Zollverein colliery was in operation from 1851 to 1986 and was the largest and most modern coal mine in the world. Today, as an industrial monument, it is both a symbol of an important economic era and an architectural monument. The Zollverein Coal Mine Industrial Complex in Essen was inscribed on the UNESCO World Heritage List in 2001. Today there are various cultural institutions, a design museum, exhibition facilities, workshops, the Faculty of Design at the University of Essen and spaces for start-ups and cultural industries.

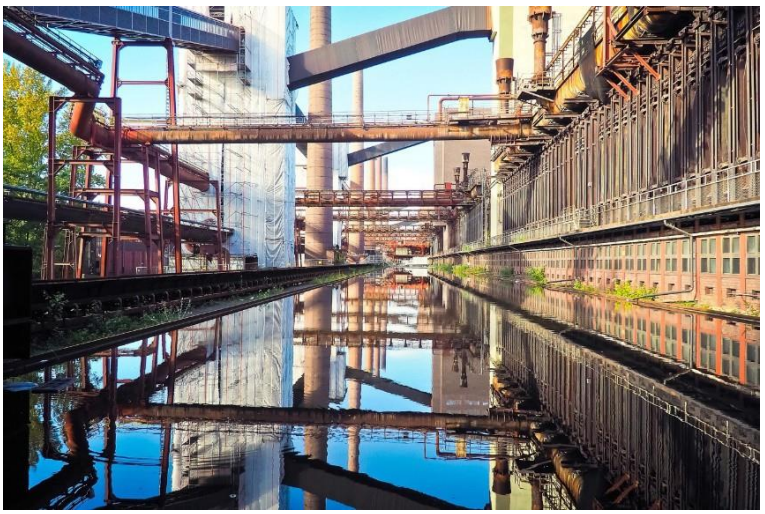

Figure 3. Zeche Zollverein Essen

Jahrhunderthalle (event hall) Bochum

The Jahrhunderthalle Bochum is a prime example of industrial cultural change, which was originally designed as an exhibition pavilion for the 1902 Düsseldorf Industrial and Trade Exhibition. Over the years, the former gas power station has developed into one of the most extraordinary festival theaters in Europe. The hall was converted for the Ruhrtriennale, a cultural festival. A light-flooded foyer, modern infrastructure, and elaborate technical equipment complements the industrial charm of the hall. It can serve as a sound chamber, a theatre or a banquet hall.

Figure 4. Jahrhunderthalle Bochum

Dortmunder U (U in Dortmund)

Under the roof of the former Union brewery, various institutions develop and combine contributions to art, culture, education, science and research. The U shows artworks from the 20th and 21st centuries, develops innovative concepts of cultural education in the digital age, initiates partnerships between art and science, and cooperates with different players in the context of creative industries. There are exhibitions, film programmes, workshops, lectures, talks, concerts, club evenings, video and sound art as well as other event formats. It is another sign of the structural change in the Ruhr area.

Figure 5. Dortmunder U

EUROPEAN CAPITAL OF CULTURE RUHR.2010

Ruhr.2010 was the cultural capital of Europe in 2010, and for the first time not a single city but a metropolitan area was the host. 53 municipalities joined to form the cultural capital of Europe Ruhr.2010.

Of the 53 cities, two thirds were under an emergency budget, which clearly sheds light on the situation of the municipal finances. The total budget was approximately 61 million Euros, funded as follows: 18 million (federal government), 12 million (North Rhine-Westphalia), 6 million (city of Essen), 1.5 million (EU), 12 million (Regionalverband Ruhr), 8.5 million (Initiativkreis Ruhrgebiet) and others. The Ruhr-Wasserwirtschafts-Gesellschaft RWG, EON-Ruhrgas, the department store Karstadt, Thyssen-Krupp and the company Haniel were the main sponsors.

Considering this financial situation, it was a surprise when Essen suddenly included all 53 cities from the area in its application for the Capital of Culture called "Essen for the Ruhr area." It basically undermined the selection criteria of the European Union, according to which no region, but only one city, could get the title. But you have more than a century of experience in "undermining" around the Ruhr area.

Where the mining industry and huge steelworks once shaped the landscape, only a few industries are preserved today. Unemployment and emigration are the consequences the region has been struggling with for a long time. The Ruhr 2010 therefore wanted to address the structural change that had already begun and to pay particular attention to industrial and cultural change. A large programme with numerous highlights was planned and the sustainability trump card was also to be played here. Nonetheless, critical voices increased before the start of the Ruhr 2010 and shed light on the limited possibilities of such a mega event.

Never before has a European Capital of Culture made the creative industry one of its main topics and placed it on an equal footing in a programme alongside publicly funded culture. For the first time, the independent actors and creators were perceived as a model industry for change through culture. RUHR.2010 has recognized the sectors of the creative economy as the driving forces of social change (from film to games to music, from literature to design to the performing arts). The annual turnover of the 23,000 creative industries in the region is estimated at around 8 billion euros. Since 2006, the growth in companies has been 14 percent, double of other industries. These figures show the economic and

social importance of the creative industries for the Ruhr Metropolis and show how important it is to actively support these companies.
The starting point for supporting the creative industries initiated by RUHR.2010 was the new concept for the use of vacancies and brownfield sites by artists and creative people in ten cities in the Ruhr area. The Kreativ.Quartiere project aimed to promote the influx of regional and foreign creative people and to invite their own university graduates or students to stay. It developed places and spaces for living and working that were exciting and inspiring, with plenty of scope for new ideas and visions.

OBJECTIVES OF RUHR.2010

When Ruhr.2010, the cultural capital of Europe, was initiated, these were the main objectives:

- to build upon the mining heritage and establish the area as a new cultural region,
- to demonstrate the cultural wealth and artistic quality of the Ruhr Area,
- to draw the world's attention to the region's identity, culture, openness,
- to achieve urban redefinition through the vehicles of art and culture,
- to combine 53 municipalities under this umbrella as a metropolitan area,
- to combine and spotlight high and everyday culture,
- to use the transformation process and identity building to enhance self-confidence of this area,
- to communicate this new kind of metropolis at the international level.

AGENDA OF RUHR.2010

Europe's new metropolis was the guiding vision underpinning RUHR.2010 from the initial idea to the implementation. It is incorporated in the motto "Change through Culture – Culture through Change," which indicates that culture should prompt changes – and that it changes itself. The "Change through Culture - Culture through Change" Ruhr.2010 programme agenda was shaped in nine thematic fields:

- The Ruhr Mythology
- Re-designing the Metropolis
- Discovering Images
- Changing Stages
- Living Music
- Exploring Language
- Boosting the Creative Industry
- A Time to Celebrate
- Moving Europe

The Capital of Culture wanted to permit a broad participation of the population in cultural activities. The RUHR.2010 programme was to leave them with a memorable experience of the Ruhr Metropolis. 300 projects and 5.500 individual events should achieve this goal.

SELECTED PROJECTS OF RUHR.2010

Three candid examples of the 300 projects are being mentioned here.

Discovering Images – Powerful Places for Art ("Starke Orte")

Regional artists in the area joined to present themselves together. 800 artists designed *Powerful Places for Art* ("Starke Orte"). At twelve locations the pieces of art should represent and interpret something typical of the life, work and culture of the Ruhr Area. *Powerful Places* was to be continued after 2010.

In this way, the exchange between artists was to promote new cooperations and further joint projects. But many independent artists felt to be left out.

The Ruhr Mythology – Shaft Signs - SchachtZeichen

Shaft Signs should illustrate the industrial past of the Ruhr Area while providing a first hand visual and emotional experience. Former mining shafts were marked by 311 yellow helium filled balloons. For one week the former mines were made visible above ground. At the base of the balloons, around 1400 projects were organised by the public. They focused mainly on memories of the underground working world of the Ruhr Area. *Shaft Signs* led to a high level of identification, to the strengthening of a sense of identity in the Ruhr Area.

A Time to Celebrate – Still-Life A40/B1

On July 18th, 2010, the inhabitants of the Ruhr Metropolis, the "iron belt" of Germany, were organising a unique event to celebrate their everyday cultural habits and traditions, deeply rooted in the tradition and identity of the steel manufacturing landscape. The party was held in a very unusual location: in the middle of the main motorway running through the rusting region, the A40/B1. As part of the programme for the European capital of culture RUHR.2010 a 60 km stretch of road was lined with 20,000 tables to create a meeting place for different cultures, generations and nations. It was the longest banqueting table in the world. Around three million visitors were able to discover regional everyday culture of various natures and forms.

RECEPTION IN THE PRESS

Still-Life made the Ruhr area accessible in a special way as a region, endowing it with a community experience. The participants and visitors contributed their story to the great new narrative of the Ruhr cultural metropolis. *Still-Life* exceeded all expectations with regard to reporting. Within just nine days, a total of 225 TV reports were broadcast in 200 countries:
“No autos on the autobahn” Washington Post
“German autobahn is given over to 60 km-long party” The British Times
With this project, RUHR.2010 finally achieved what it had expected of the Capital of Culture from the start: the Ruhr Area was the talk of the town – almost worldwide.

SUCCESS?

When is a Capital of Culture successful?
When the programme gets outstanding reviews?
When tourist figures go up enormously?
When at least two new museums are inaugurated?
No! Figures are arbitrary they only appear to be a reliable point of reference.
The programme fulfilled the following key attributes:

- Creation of strong, striking images
- Narrating the history of the Ruhr area
- Activation of citizens to join in and take part in events
- Feeling of community within the population
- Enabling experiences that span across the entire region
- Establishment of the brand Ruhr Metropolis
- Showcasing the cultural richness of the region
- Initiation of an image change

CONCLUSION

What remains of the 2010 Capital of Culture? In 2010, the once heavily industrialized Ruhr region with its 53 cities, around 5.3 million inhabitants and numerous guests celebrated culture and itself. The third largest agglomeration in Europe gave itself a new image and presented the unique density of theatres, orchestras and museums and, more importantly, everyday cultural life.

Even after the successful Capital of Culture year, the Ruhr area has continued to rely on structural change and wants to attract visitors with art and culture and improve living conditions. It is still questionable whether this is enough to stop the emigration. However, the Ruhr 2010 set interesting accents and made the region known to the international audience. The solidarity of the cities also has a historical dimension. It was above all the big events that shaped the image of the Ruhr 2010 and were the focus of attention. The "Stillleben Ruhrschnellweg" made the A 40 the largest pedestrian zone in the world. Three million people frolicked in this social sculpture and hundreds of thousands made pilgrimages to the so-called "shaft signs", which the former mines staged in the district. In total, almost ten million visitors made their way to the Ruhr metropolitan area with Essen as the focal point. In this respect, the Ruhr 2010 can call itself the most successful European Capital of Culture to date.

Policy for creative industries has become a cross-departmental overall strategy of urban politics.

The stories of the great events will long remain in the collective memory and it can be linked into again in the future. But the Capital of Culture was a unique, one-time event. Such a highlight cannot be continued or repeated. The images cannot be revived. Repeating these formats present a danger of leading to the trivialising and subsequently diminishing of the successful experiences and images of the past.

Now all activities should focus more on integrating the existing cultural offerings in the region, combining "high" and "popular" culture. Despite all efforts, there still is a line between "high" and "popular" culture. The enduring value does not solely come from temples of culture or from review pages; it comes from the people and from everyday culture.

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THE USE OF VIRTUAL ENVIRONMENTS IN A CHOICE EXPERIMENT TO MEASURE WALKABILITY ON STREET BLOCK LEVEL

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INTRODUCTION

The built environment and social environment have a considerable impact on physical activity and lifestyle.[1] Empirical research has shown that the design of the built environment has a significant influence on the extent to which individuals walk, which is an important element of the lifestyle of people in the neighbourhood.[2] Commonly, this influence is measured by many walkability indices that include objective and subjective methods. Previous studies indicate that the way people perceive the built environment affect their walking behaviour.[3] The majority of existing subjective measures of walkability focuses on the neighbourhood level of assessment of the walking environment. For example, the Neighbourhood Environment Walkability Scale, a worldwide survey to assess the perceived walkability in neighbourhoods, uses 5 or 7 scales to ask respondents to rate the neighbourhood environment they live in. [4] However, a smaller scale of the walking environment could make people's assessment more precise. For example, the street block, as a part of a neighbourhood, provides sufficient spatial detail and has been described as the fundamental and appropriate unit to map the urban structure.[5] However, the perception of the quality of the walking environment on street block level has received less attention.[6] In addition, the research of whether certain groups of users value the walking environment differently on street block level is also lacking, especially considering the experience of users.

The choice experiment is a well-established technique to measure preferences. In a choice experiment, users are asked about their preference in specific or hypothetical situations. Traditionally, the representations of choice alternatives in a choice experiment only provide static and rudimentary contents (e.g. text, photo and image) to respondents while a virtual reality environment could provide a dynamic and integral impression of the environment. The use of virtual reality technology in a choice experiment will help respondents to perceive the walking environment on street level more directly.

Therefore, this study applies a choice experiment technique to measure walkability on street block level using virtual reality visualization techniques to simulate the street block of the real-world environment seen from the eye-level of pedestrians. The data of the choice experiment is collected with an online survey. This survey uses a dynamic 3D virtual reality video to visualize different street block designs

from the viewpoint of a moving pedestrian in street block environments. The ultimate goal is to understand to what extent different attributes contribute to perceived walkability. The methods and results can contribute to the development of walkable neighbourhood (street block level) design and the development of tools to connect design theory and design practice.

METHODOLOGY

In this section, we introduce the method and approaches to design a choice experiment using virtual reality. We also introduce approaches used to collect and analyse data.

Design of the experiment

To understand participants' subjective judgment of the built environment, choice experiments are used worldwide in empirical research. In a choice experiment, participants are asked about their preference for hypothetical choice alternatives, which usually involves a choice, ranking, or rating task.[7] Across hypothetical situations presented several attributes are varied based on a statistical design such that the separate effects of the attributes can be determined by analysing the choice/preference data. Normally, textual representations are used to describe the alternative situations in a choice experiment.[8] However, this cannot always adequately convey the essence and complexity of certain decision contexts.[9] Studies, therefore, have started to use visual representations such as photos and images to present hypothetical situations instead of textual representations.[10] Although visual representation is preferable to textual representation in many ways, it still only provides a static and often rudimentary impression of the environment the researcher intends to present. [11] Since behaviour of residents involves direct or dynamic interaction with the surrounding physical and social environment, Shr et al. (2019) pointed out that the incorporation of virtual reality (VR) techniques could result in greater external validity compared to traditional methods of choice experiment. [12] The same was argued by Farooq et al. (2018) who used VR techniques in a choice experiment to investigate the association between environmental preferences and transport mode choice.[13]

The design process of this experiment includes three steps, as follows: (1) define attributes and attribute levels, (2) design the virtual reality environment, and (3) design the questionnaire. The first step is to define the attributes and attribute levels of the choice alternatives used in the experiment. Existing empirical research of perceived walkability measurement has already validated the effect of neighbourhood characteristics on walking behaviour.[14] Neighbourhood characteristics, like land use mix, connectivity, traffic safety, crime safety, greenness, access to facilities, and aesthetics, are often used in measures of walkability in many empirical studies.[15] For the present experiment we use the street-block as spatial level of scale. As being part of neighbourhoods, street block characteristics are similar to neighbourhood characteristics regarding their effects on walkability. Compared with the neighbourhood, the street block has a small size which is suitable to generate 3D models in the VR environment and allows respondents to perceive features of the built environment more directly.

For the selection of attributes, in earlier work (Liao et al., 2020), we found that land use mix, open space, and green are significantly associated with walkability in the Netherlands.[16] Besides, Yamamoto et al. (2018) figured out that pedestrians and connectivity are very important for the neighbourhood walkability. Therefore, the designed experiment selects the above mentioned five characteristics of neighbourhoods as street block design attributes. [17] Table 1 shows the attributes and the levels of the attributes that were varied in the choice tasks.

Attributes	Levels
Land use mix	(1) Residential area (2) Mixed with commercial area
Block connectivity	(1) High connectivity (2) Low connectivity
Road size	(1) Two lanes with narrow pedestrian (2) One lane with wide pedestrian
Open space	(1) Has open space in the street (2) Not has open space in the street
Green	(1) Has trees in the street (2) Not has trees in the street

Table 1. Attributes and levels of the attributes

According to the Table 1, 32 (2^5) combinations of attributes are possible. However, it is possible to reduce the number of combinations and still avoid any correlations between attributes. Orthogonality is an important requirement for a design to make sure that the attributes are uncorrelated so that their separate effects (on perceived walkability) can be identified.[18] In this case, the full factorial design can be reduced (by taking a fraction) to an orthogonal design consisting of eight attribute profiles (combinations of attribute levels).

In the next step, the eight combinations are converted to eight virtual reality environments. We build a typical Dutch street block as a basic 3D model in Sketch Up Pro 2019. The eight 3D sketch models correspond to the orthogonal design of alternatives and are shown in Figure 1. The road width is kept constant, but we vary the type of road: (1) two lanes for cars with a narrow size of the pedestrian sidewalk, and (2) one lane for cars with wide space for pedestrians, as shown in Figure 2. Based on the 3D sketch models and road size design, we generate eight virtual reality environments, which are then all eight imported to Twinmotion 2019 — a quick real rendering software. In Twinmotion 2019, we add materials and greenness to all 3D sketch models, as shown in Figure 3. Next, we set a walking perspective and export all virtual reality environments as movies, as shown in Figure 4. To keep the consistency, all movies of virtual environments have the same walking route, watching direction, geographical location, sunlight time, and weather. The length of each video is 1 minute and 30 seconds. The questionnaire is designed into two parts. The first part is about the individual's perception of his/her existing neighbourhood and personal characteristics, and the second part contains the movies and related questions to retrieve perceptions of the virtual reality environments. The questionnaire of the VR part is related to how the participant experiences the virtual reality environments when they seemingly walk through the environment. In the VR part, the experimental area is 300 meters in length and 240 meters in width. Considering the length of the questionnaire, we randomly show 4 out of 8 dynamic 3D videos of the VR environment to each respondent. We use two sections to ask participants about their perception of each virtual reality environment. The first section includes two questions about the quality of the environment, as follows: (1) "How would you rate the virtual environment on overall quality?"; and (2) "How would you rate the virtual environment on walking friendliness?". Each question uses a 7-point Likert scale from not at all satisfied to fully satisfied. The questions of the second section are about the emotions the virtual environment evoked. We ask participants to indicate

to what extent they experienced four emotions, namely "I felt happy/comfortable/annoyed/secure". Each item is answered on a 7-point Likert scale ranging from completely disagree (1) to completely agree (7). Besides, we use an open question to receive feedback on how people experienced our experiment.

Data collection and analysis approach

The data of our experiment is collected by an online survey. Respondents are recruited from a national consumer panel and through social media in the Netherlands. In total 308 persons completed the questionnaire, 272 from the consumer panel and 36 from social media. To ensure sufficient data quality, respondents who answered each question the same and took less than 8 minutes for the VR part were removed.

After data cleaning, 295 respondents remained in the sample. In the final dataset, each respondent has watched 4 videos (VR models). To take this panel structure of the data into account, we use the random effects model to analyse our panel data. A random effects model allows for individual-level random variation as well as observation-level error. [19] To estimate effects of the attributes on perceived walkability, we use the second question (perception of walking friendliness)— "How would you rate the virtual environment on walking friendliness"— as the dependent variable and the attributes of the VR environment as the independent variables. The five attributes are processed using dummy coding where the first level of each attribute is taken as the basis. To further understand whether certain groups of people value attributes differently, we include socio-demographic characteristics as interaction terms (interactions with five dummy variables) in the random effects model. We do manually stepwise analysis in the random effects model. In every step of the model, we add one socio-demographic characteristic at a time (interaction terms of this characteristic with the five attributes). Then we keep significant items and remove insignificant items at every step.

For the open question, we received comments from 146 respondents. We firstly classified comments of respondents in terms of 2 types of attitudes— positive and negative. We then labelled 8 types of feelings related to those comments.

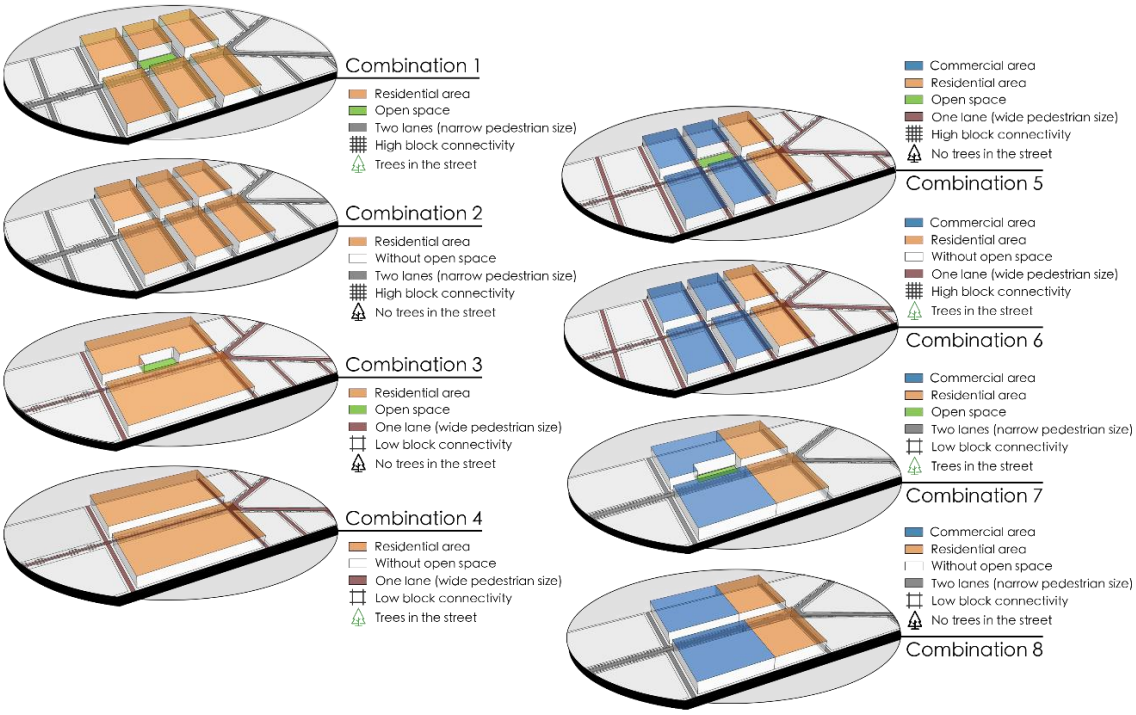

Figure 1. The design combinations of street blocks

Figure 2. The design road size of street blocks.

Figure 3. The design virtual environments of street blocks.

RESULTS AND DISCUSSION

This section presents the results of the data analysis. The estimation results of the random effects model are shown in Table 2 and the analysis results of the open question are shown in the Figure 4.

Results for the random effect model

First of all, we did the regression analysis to test the effects of physical environment characteristics (five attributes) on the perceived walkability. The results are shown in Table 2. Regarding the effects of attributes of VR environments on the perceived walkability, the results show that street blocks with

only a residential function, with high block connectivity, with open space, and with trees in the street are perceived as more walkable, while street blocks with two lanes with narrow pedestrian size are perceived as less walkable. Looking at the size of the coefficients, the two lanes with narrow pedestrian size (-0.39) and presence of open space in the street (0.36) appear to be much stronger than the other three attributes (0.19, 0.22, and 0.29). These findings are in line with many empirical researches which indicate that the perceived walkability is associated with residential density, street connectivity, neighbourhood aesthetics, and walking facilities.[15]

Regarding the effects of socio-demographic characteristics and their interaction terms on the perceived walkability, the results show that different groups of people have different preferences. On the one hand, the results show that low income people (gross income from 20,000 euros to 30,000 euros) perceived the VR environment on average as more walkable while people living in households with children perceived the VR environment as less walkable. On the other hand, the results on the level of interaction terms show that certain groups of respondents value the attributes of VR environment differently. Highly educated people find road size and green more important. People who have a long commute time (over an hour) find block connectivity more important. Similarly, both single persons and couples with children also value road size more. Furthermore, people who have different income levels have different concerns. Low income people (gross income from € 10,000 to € 20,000) find road size more important while medium and high income people (gross income from € 20,000 to € 30,000 and from € 30,000 to € 40,000) value block connectivity and land use mix more. People living in different types of dwelling also have different preferences. People who live in a detached house find block connectivity more important while people who live in an apartment or flat in a building value open space more. These findings are partly in agreement with other empirical studies which found that people with different socio-economic statuses have different associations with walkability.[16]

Results for the open question analysis

The open question— "how do you feel about the VR environment?"—could help us to understand how respondents experienced the VR experiment. The positive attitude includes 4 types of feelings— realistic or natural, interesting or fun, detailed, and nice or comfortable. Most respondents have these positive feelings to our VR environment (91 of 146 respondents). The most frequently mentioned feelings in this category are 'realistic or natural' and 'interesting and fun' with 37 respondents and 27 respondents respectively. The negative attitude also includes 4 types of feelings— not real or unnatural, not safe or uncomfortable, dislike or boring, and too flat. There are only a few respondents (39 out of 146 respondents) who indicated a negative feeling to the VR environment. In sum, these results indicate that most respondents experienced the VR environment positively (see Figure 4).

	Estimate	z-value	
(Intercept)	5.25	27.72	***
VR Environment attributes			
Residential area	0.19	3.06	**
High block connectivity	0.22	3.25	**
Two lanes with narrow pedestrian size	-0.39	-4.56	***
Has open space in the street	0.36	5.66	***
Has trees in the street	0.29	4.19	***
Sociodemographic characteristics			
Age	-0.01	-3.09	**
From 20000 to 30000 euros (gross income)	0.52	2.95	**
Couples with children (household situation)	-0.34	-2.26	*
Interaction items			
Education Level			
Residential area: High educated (HBO)	-0.26	-2.38	*
Has trees in the street: High educated (HBO)	-0.26	2.41	*
Travel time for work			
High block connectivity: Long commute time	-0.86	-3.79	***
Gross income			
Residential area: Low income	0.58	3.82	***
High block connectivity: Middle income	-0.32	-2.16	*
Residential area: High income	0.29	2.29	*
Ethnic background			
Residential area: Western migration	1.41	2.59	**
Household situation			
Two lanes with narrow pedestrian size: Single persons	0.28	2.25	*
Two lanes with narrow pedestrian size: Couple with children	0.25	1.86	.
Dwelling type			
High block connectivity: Detached house	0.32	2.24	*
Has open space in the street: Apartment	0.31	2.67	**
Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1			
R-Squared: 0.1581	**Adjusted R-Squared: 0.1443**		

Table 2. The results of random effects model with interaction items

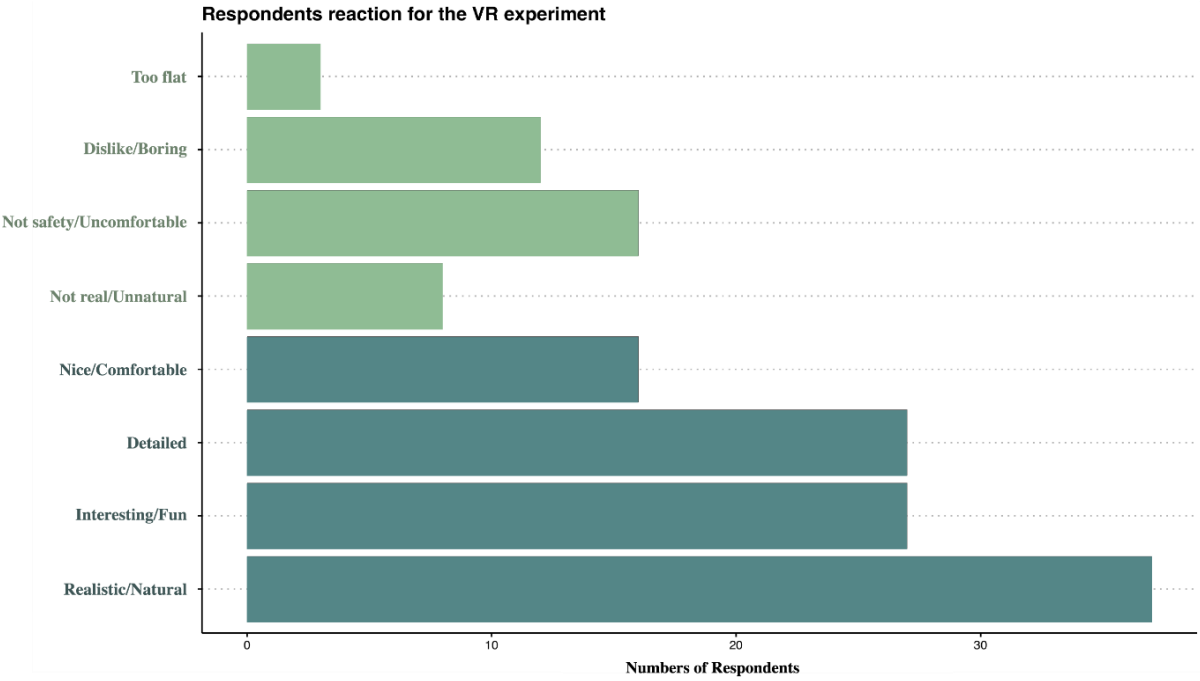

Figure 4. Feelings of Respondents for the VR experiment.

CONCLUSION AND RECOMMENDATIONS

In this study, we analysed to what extent certain attributes contribute to perceived walkability based on a choice experiment combined with the virtual reality technology. In the experiment and VR environment design, we considered five attributes that are most commonly used to measure walkability in previous studies. Our results validate findings from empirical studies that land use mix, connectivity, road size, open space, and green affect perception of individuals on the neighbourhood walkability (street block level). Furthermore, road size and open space have largest impact on the perceived walkability in the VR environment. Therefore, it is useful and meaningful to consider sidewalk width and open space as most important instruments to create walkable neighbourhoods (street block level designs). An interesting finding, furthermore, is that people with different socio-demographic characteristics value the attributes differently and may have different judgements in terms of the relative importance of certain attributes for walkability.

The results of the open question analysis show that most respondents evaluated the VR experiment positively (they think the VR environment is realistic and fun), which provides some evidence that VR is a useful technique to enrich the application of stated choice experiments in urban planning and design. However, the present study still has several limitations that should be addressed in future research. Firstly, our experiment used an online video representation, but immersive virtual reality technology (using the VR headset and equipment in the lab) could provide a more immersive and real environment for the respondents. Second, our video representation had a fixed route and viewing direction while the more realistic virtual environment should allow respondents to walk and watch more randomly around creating a route by themselves. In the near future, we will repeat the experiment using full-fledged VR equipment in the lab allow respondents to immerse in the environment and walk more randomly and look around in the VR environment.

Although this study has some limitations, it provides methods that connect theory and design practice (combine walkability theory, choice experiment, and virtual reality). Our findings have provided insights in how people value which attributes of the environment for walkability.

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NARRATIVES OF ITALIAN COLONIZATION IN THE 20TH CENTURY IN THE PHOTOGRAPHS OF VITTORIO BUCCELLI

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INTRODUCTION

From 1875 colonization by Italian immigration began in the state of Rio Grande do Sul (which is located in the southernmost part of Brazil). Gradually the landscape of the northern part of the state, until then almost not explored because it is an area of forests and hills, has been modified through the expansion of colonies created by the federal, state government, or by private. The establishment of colonies, which involved the colonists' labor and agricultural production, contributed to the diversification of the state's agricultural production and helped supply the domestic market.

Within this historical context, Vittorio Buccelli, an Italian journalist, traveled through the state of Rio Grande do Sul (BR) in 1904 with the aim of raising information that would be attractive to potential Italian immigrants. Through photos, Buccelli recorded the material and immaterial culture of these Italian immigrants. It is from a photographic record, selected from Buccelli's travel book, that this study aims to problematize the construction of a propagandistic narrative that seeks to enhance the southern region, as a remarkable space of economic and social growth for Italian immigrants at the beginning of the 20th century.

For this, an (qualitative) analysis is used in addition to the iconography and/or iconology of photography, where the proposal - by the author George Didi-Huberman - is not to take the image as a synthesis, as a representation of "a real", making it possible to reveal readings, thoughts, and other discoveries. As an investigative exercise, this method will allow the exploration of the relationships that compose the testimony of the Brazilian "reality", which awaited immigrants, made by a foreigner subjected to certain pressures and demands of a political/economic nature at the time.

COLONIZATION THROUGH IMMIGRATION IN THE STATE OF RIO GRANDE DO SUL

The term "colonization in Brazil" was used as referring to "[...] clearing of the forest, the valorization of the territory for agricultural purposes and its settlement"[1], through the arrival of immigrants Europeans for the country, a process that gained strength from the beginning of the 19th century.[2] Regarding the concept of immigration, it is understood that "'migrating' derives from Latin and means 'leaving, changing, going away'. But the use of the term 'immigration' in the sense of entering another territory, and 'emigration' in the sense of leaving a certain place, is linked to the population movements that accelerated in the 19th century".[3]

The establishment of colonies (understood as land to be cultivated through the work of settlers) contributed to the diversification of production and helped supply the domestic market. This policy ended up introducing the agricultural sector in Rio Grande do Sul, which until then was dominated by the livestock economy and the large landowners that occupied the southern half of the territory since the period of Colonial Brazil.[4]

In Rio Grande do Sul, initially, the Imperial Government allocated two areas for Italian colonization: public lands, with no destination for use or depopulated in the northeast (between Rio das Antas and the German colonies of the lower Taquari and the basin Caí River) and lands located in the Central Region, close to the city of Santa Maria. The best lands were already occupied by immigrants of Portuguese-Brazilian and German origin. Thus, Italian immigrants settled in places not yet explored, dominated by mountainous areas and virgin forests. The division of colonial plots hardly respected geographical accidents, only those of greater importance, in addition to rivers and tributaries.[5]

From 1870, the colonies Conde D'Eu (today the cities of Garibaldi and Carlos Barbosa) and Dona Isabel (today Bento Gonçalves) were created in the Serra Gaúcha. The colony of Caxias do Sul, also in the mountains, was created in 1875, and further to the center of the state, the colony of Silveira Martins was created in 1878. The Alfredo Chaves colony (today the municipalities of Veranópolis, Nova Prata, and Nova Bassano) was created in 1884 and the colonies of São Marcos and Antônio Prado in 1885.

In 1875, the first Italian immigrants arrived in Rio Grande do Sul to occupy these colonies and in the following years the immigration flow intensified. It is believed that between 1875 and 1914, between 74 thousand and 100 thousand Italians arrived in Rio Grande do Sul. The intense immigration is explained by the serious economic crisis that Italy, recently unified (in 1871), passed between the years of 1884 to 1894.[6] Giron also points to the high production of coffee in São Paulo and the restriction of immigration to the USA as facts of the intense Italian immigration to Brazil.[7] The population surplus, the establishment of the capitalist mode of production, the end of handicrafts, and the expulsion of the peasant from the land, were factors that led the Italian population to situations of misery and hunger, as the industry was not able to introduce them as labor.[8]

For the Italian state, emigration has become a lucrative business due to gains with shipping companies and credit institutions. In addition, later, remittances of money from immigrants to relatives who stayed in Italy generated a highly profitable capital movement.[9] In short, the "[...] Italian emigration company added to the Brazilian immigration company, involving both in large economic interests". [10] Thus colonization companies, regional inspectorates, and land commissions are created to guarantee the immigration undertaking in Brazil.

Even after the end of the Imperial period in the country in 1889 and the transfer of responsibility of the public lands to the Federated States in 1895, the immigration policy was perpetuated. However, between 1890 and 1900, there was a weakening of the migratory current to Rio Grande do Sul due to the reduction of contracts with the Union, in a clear anti-immigration policy from the part of Rio Grande do Sul, which saw in colonization a large public expending. From 1903 onwards, the number of waves increased again due to the aid granted to the colonists by the Union for the costs of housing, tools, and seeds. So, the waves were added considerably, which again made the agreement for Rio Grande do Sul disadvantageous. Although it was not the motivation that the federal government advocated, it was the coffee crisis in São Paulo that triggered the excess shipping of immigrants to Rio Grande do Sul at that time.[11]

The colonial smallholdings gradually changed the landscape of the north of the state. As some areas were used up their population and land capacity, new colonization fronts were established, which later

resulted in the formation of a network of cities, in the north of Rio Grande do Sul, with strong Italian-German traits that last until current days.

Frosi and Mioranza point out that the regions of Italian colonization and their economic and social development process took place in three stages: first, immigrants were established with their subsistence agriculture, without integration into Brazilian culture, but rather a transfer of the Italian element to the colonization areas. [12] In a second stage, there was the development of viticulture, between 1910 and 1950, and the commercialization of wine, first with the state capital and then with the São Paulo market. Finally, there was the industrialization process that started "[...] with capital derived from trade - that revolutionized the socioeconomic and, as a result, socio-religious and ethical-linguistic schemes in the Region". [13]

The isolation imposed on the Italian colonies due to their difficult locations ended up preserving elements of their culture for several generations, such as language, customs, and an architectural construction along the lines of Italian villages. However, an Italian nationalist conscience was not identified among immigrants arriving from different regions of Italy over the years and this fact was resented by many "Italian" propagandists as something negative. For Manfroi, the Catholic religion was the integrating force of immigrants in Rio Grande do Sul. [14]

After this historical and bibliographic review, one can understand the context in which the Italian families who came to the south of Brazil found. So, based on the proposal to understand the images and their possible interpretations, an approximation will be made with the photographic records produced by Vittorio Buccelli, during his passage through Rio Grande do Sul, in 1904.

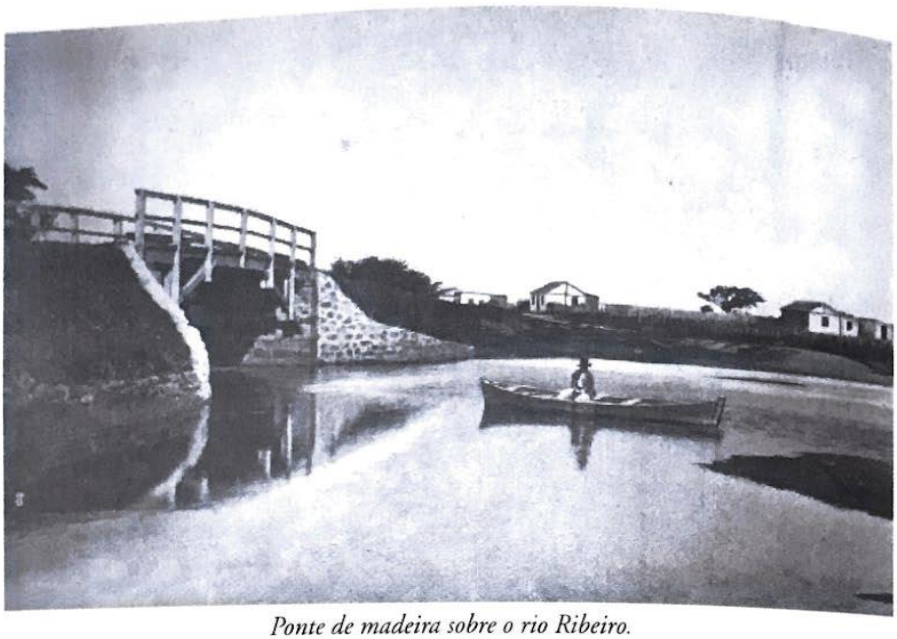
VITTORIO BUCCELLI AND PHOTOS OF IMMIGRATORY ENTERPRISE: AN ANALYSIS

Within this historical context, from a community that sought identity and cultural reconstruction, Vittorio Buccelli, an Italian journalist, traveled through Rio Grande do Sul, in 1904, with the aim of raising attractive information for potential Italian immigrants. He landed in Rio de Janeiro and then headed south where he recorded, through textual descriptions and photographs, Porto Alegre, the Italian colonies of the mountains and the region of the campaign. Two years later, he edited and published in Italy the book[15] "Un Viaggio a Rio Grande del Sur" (figure 1).

Figure 1. Cover of the book "Un Viaggio a Rio Grande del Sur" by Vittorio Buccelli published in Brasil recently[16]

Buccelli's photographs recorded the Italian material and immaterial cultural heritage in the Brazilian context that can be verified up to the present day in the cities that were constituted. His photographs (figure 2, 3, and 4) focus on rural and urban themes, on architecture and on demonstrations of activities and social interactions, as well as the nuances of the interaction of nostalgic people within unknown territory. It is from these photographic records, from Buccelli's travel book, that this study aims to problematize the construction of a propagandistic narrative that seeks to enhance the southern region of Brazil, as a space of opportunities for economic and social growth for Italian immigrants in the early 20th century.

74 Vittorio Buccelli



Ponte de madeira sobre o rio Ribeiro.

Belém Novo.

Figure 2. Photography on page 47 of "Un Viaggio a Rio Grande del Sur", Vittorio Buccelli's book[17]

Figure 3. Photography on page 147 of "Un Viaggio a Rio Grande del Sur", Vittorio Buccelli's book[18]

Figure 4. Photography on page 147 of "Un Viaggio a Rio Grande del Sur", Vittorio Buccelli's book[19]

For such an analysis, it is necessary to previously understand the ideas that support the intended (qualitative and sensitive) reading. It starts from this understanding, that the image is not a synthesis. For Didi-Huberman, this looking at the image "is just to make the image appear, informing the viewer that what he sees is nothing more than a gap aspect and not the whole thing, the thing that the image represents".[20] In this sense, it is emphasized that the images, in a general context, will not be understood as a representation of an ideal, an image-object; but rather, should be understood "[...] as operating images, operating in a process of knowledge [...]".[21]

The operation of the "operant image", by Reyes, thus consists in the tearing of its representational sense, which would lead the viewer to interpret it "[...] beyond the visible and the legible [...]"[22], opening "[...] the eyes to experience what we do not see, what we will no longer see - or rather, to experience what we do not see with all the evidence (the visible evidence) [...]"[23]. Thus, the proposal is that the image, derived from Buccelli's book, should be read as a representational gap, which invites and suggests different interpretations. The image can be the creator of a gap to be filled by different senses.

For a viable analysis to the size of this study, it is based again on the ideas of Didi-Huberman, when he establishes that "[...] an image, whatever it may be, 'should', like all text, know how to 'tear the cliché' already formed by the fetishization of memory. What is needed, at each time, is to roll the dice again and ask new questions".[24] Thus, this study focuses on a single image, as it is believed that it alone is capable of handling the proposed reflection. This iconic image was selected with the intention of being able to represent a symptomatic and singular perspective of the photographer, Buccelli. Anchored on this image, its operational reading is proposed with a view to the gap and to the destabilization, which, in the case of this exercise, allows us to think of the scenes of the colonization of Brazil as motivating the construction of another narrative beyond Buccelli's proposal. The selection of the photograph is justified, as follows (figure 5), as it differs from the other records by presenting an apparently "negative" scene and, in a way, out of place, compared to the rest of the other photographs that compose the work, bring the record of a tree felled by a phenomenon of nature, according to the legend of Buccelli.

Figure 5. Photo on page 75, with the following caption: "Effects of a terrible storm."

It is important to emphasize that it is essential to develop another way of looking, more sensitive and detailed, for the selected image (figure 5) so that it allows the possibility to unveil other information, other discoveries, which are not shown for an inattentive and superficial look. This new or different view should be guided by the problematization of the narrative of colonization intended by Buccelli. The size of the tree contrasts with the size of the people who, perhaps naively, occupy its top. It is possible to think that the force of nature, in this case, aligns with the force of colonization: the direction, the unpredictability, the challenge, the unknown. And given all the challenges and events imposed by untamed nature, individuals interact as they can, as they manage. The scene suggests brutality, a trauma, which may refer to the experience of immigrating to distant and mysterious lands.

The discovery process generated by this image shows another side (perhaps cruel and inhuman) of colonization policies. The strength that escapes from this photograph can be taken as an indication of the absence of a space for the development of an Italian nationalist conscience or an integration of immigrants into Brazilian culture. A people subjected to so many forces emanated by man and also by nature suffer, react, and resist in any possible way.

CONCLUSION

This work has as its theme the possible narratives of Italian colonization in Rio Grande do Sul through the photographic record made by Vittorio Buccelli, at the dawn of the 20th century. The study was based on a bibliographic review on how Italian colonies were established in the state of Rio Grande Sul and the arrival of Italian immigrants to occupy them. Within this context of colonies and immigrants,

Vittorio Buccelli, an Italian journalist, traveled through Rio Grande do Sul, Brazil, in 1904 with the aim of raising attractive information for potential Italian immigrants.

It is from one of his images, selected from Buccelli's travel book, that this study aims to exemplify and problematize the construction of a propagandistic narrative that seeks to enhance the southern region, as a remarkable space of economic and social growth for Italian immigrants in the early 20th century. Therefore, an approach (of qualitative and sensitive nature) was adopted where the proposal - by the author George Didi-Huberman - is not to take the image as a synthesis, as a representation of "a real", so that it should be possible to reveal multiple readings, thoughts, and testimonies. Thus, with the "operation of the operating image", it was possible to explore the spectrum of relationships that make up the testimony of Brazilian "reality", which reveals some deviant and (perhaps) not ideal aspects for colonization policies. Since "reality" always touches us in an intermediate way, it is easy to understand that the map is not the territory, but a representation capable of multiple interpretations and that provides information at different levels of complexity.

With what was presented above, we tried to create a space for critical exploration and problematization of the narratives produced by institutionalized powers, which decided on the lives of families and communities. It is believed that the awareness of looking and thinking about documentary sources, such as the one produced by Vittorio Buccelli at the beginning of the 20th century, is increasingly fundamental for history, for cities and (why not) for the world.

NOTES

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[10] Giron*, A imigração*, 58.
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[13] Frosi, *Imigração*, 78.
[14] Olívio Manfroi, *A colonização italiana no Rio Grande do Sul: implicações econômicas, políticas e culturais.* (Porto Alegre: Est, 2001)
[15] The original publication was not found, only its reference: Vittorio Buccelli, *Um viaggio a Rio Grande del Sud*. (Milão: Officine Cromo-Tipografiche L.P. Pallestrini & C., 1906)
[16] Vittorio Buccelli, *Uma viagem ao Rio Grande do Sul.* (Brasília: Senado Federal, Conselho Editorial, 2016)
[17] Buccelli, *Uma viagem,* 47.
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[19] Buccelli, *Uma viagem,* 147.
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[21] Paulo E. Reyes, "*A imagem fraturada a favor de um projeto como processo*" (paper presented at the V Encontro da Associação Nacional de Pesquisa e Pós-Graduação em Arquitetura e Urbanismo, Bahia, Salvador, October, 2018) 5155.
[22] Reyes*, A imagem*, 5157.
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WHY WE DON'T MIND WALKING: JOYS AND LESSONS OF FLORENCE STREETSCAPES

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INTRODUCTION

This paper is about the walkability of the streets of Florence, Italy and some ways that Florence may offer useful lessons for planning today's urban projects. The presentation describes attributes of the town's streetscapes and observes possible relationships between these attributes and pedestrian attitudes and behaviors.

Contexts

Observations about walking in Florence begin with a few relevant contexts.

The study is descriptive, personal and qualitative, the author's account of walking in Florence in immediate, experiential terms. Observations leading to interpretations and inferences are subjective and idiosyncratic and so findings and propositions are modest and provisional.

Descriptions of Florence streets and street life were accumulated and compiled while teaching in Florence for the 1996-97 academic year and during seven subsequent six-week summer terms serving as instructor there.

The observations from which this paper derives are from an architect's perspective, that is, with interest in and emphasis on path typologies**,** environment–behavior relationships, urban form, public space and fabric building vs. signature building patterns.

Florence city form

The origins and shaping forces of Florence are relevant background for discussing the town's streets and foot traffic.

Despite its legacy as the cradle of the Renaissance, the historic city core of Florence is essentially medieval in character. Reconstruction after War II and modifications when Florence was temporarily capitol of Italy have not appreciably altered the city's twisting web of tight, bent, narrow streets punctuated by open piazzas.

The evolution of Florence was typical of many Italian city-states with urban growth enclosed and protected by a series of concentric, defensive, stone walls. The final walls were built in the late 13th and early 14th century. These walls were demolished in the late 1800s to modernize Florence as the new capitol of Italy. This title lasted from 1865 to 1870. The footprint of these walls is now the Viale, Florence's ring road that surrounds and defines the historic city core.

One result of a town surrounded by a succession of walls is that, within the walls, land was precious, limited and urban development compressed. Streets were narrow, sized for foot, horse and cart traffic.

Unused land inside the walls was employed at first for agriculture until the city expanded into it. Open piazza space was reserved for important buildings, usually churches and government buildings and later, palaces. Piazzas honored these structures by fronting or surrounding them with generous open land in a town of otherwise tight utilitarian urban space.
Florence's urban form today inside the Viale is largely a result of the founding of Florence by Roman soldiers in 68 BC and the gradual extension and growth of the city out from the original rectangular, gridded Roman camp geometry. The lines of the main north-south road and east-west road of the camp are still major arteries in Florence today and serve as important organizers of present town layout.

WALKING IN FLORENCE

The descriptions that follow address some of the attributes of Florence street environments that contribute to the town's walkablity.

City in reach

The walkability of Florence begins with its size, compactness and shape. The historic core inside the Viale is approximately 1250 acres in area and roughly 1.5 miles across. Using the Duomo's Baptistry as Florence's geographic center [the historic one from the founding Roman camp is in Piazza della Repubblica], it takes roughly the same amount of time to walk to the city edges [Viale] in all directions. Most of the frequented walking destinations can be reached from any point in 15 minutes or less. This sense of the city-in-reach on foot promotes a general disposition of town-at-hand for pedestrians.

Driving, housing and daily necessities

Because of the challenges of driving in Florence, the dense housing inside the Viale, and the availability of most of the necessities of daily life in the city core, typical days usually happen on foot. Walking every day cultivates knowledge of town layout and discovery of efficient routes and pleasure routes, locations of desired destinations and path options to reach them. We learn what to expect in the streets and are less thrown by the inevitable discomforts and inconveniences of pedestrian life.

Walking culture

The habit of walking in Florence has a cultural/social component. There is a life-enhancing spirit, attitude, joy toward walking in Florence; a positive anticipation of going out, being out, being with, joining, belonging; sense of being a citizen; empowering feeling of a body that moves; satisfaction of a journey free of technology and mechanical assistance; inherent positives of exercise.

Medieval carryover

Another aspect of history's influence on Florence walkability and walking culture is the carryover of the medieval relationship between housing and public space. Florence apartments have always been small with pinched, uneventful views, odd layouts, walkup stairs and little sunlight. This somewhat deprived dwelling situation originally resulted from town compactness stemming from medieval perimeter wall limits and necessary urban compression and density, from the social/economic stratification of all medieval cities and the Italian genius of crafting quirky, workable apartments from impossible leftover space geometries. This is in contrast to the carefully planned, generous, open, sunlit, lively piazzas with their large skies, beautiful signature buildings and welcoming accommodation of vibrant urban life. In Florence, with the exception of the palaces, life has always happened in the streets and piazzas. Florentines have literally been squeezed out of their apartments into the more life-enhancing environment of public space, thus populating public squares and streets and supporting

commerce, urban vitality and sense of community. This tendency to join is supported too by the Italian love of contact, participation, engagement and belonging.

Walking in story

Walking in Florence is walking in history. The town itself is a museum, a sweeping story with gravitas laced with drama, feuds, pivotal events, intrigue, mystery, heroes and villains. Even without special effort, being in Florence for any time we become aware of its history. There is a delicate sense of personal and task elevation when immersed in Florence's history. We somehow borrow a bit of its value, dignity, prestige. This positive predisposition toward place and story can move us to diminish, look past and forgive the inevitable frustrations of city walking and to somehow feel our lives are playing out on a higher plane.

Beauty

To move through Florence is to move through beauty. Buildings mass and compose well in all view directions. Tan and cream, stucco and stone, green shuttered fabric facades with roofs of terra cotta tile shape Florence streets and piazzas and are fitting settings for intricately marbled signature buildings, piazza and street space, elegant store windows, river Arno, its bridges and the city's bustling urban life. Vegetation is scarce in Florence's historic core. When trees are encountered, the surprising color/texture contrast with the otherwise paved, built-over environment renders the lacy greenery a soft, gem-like gift.

Sensuality

In Florence streets all senses are busy, alive, awake as we navigate the town. Not as a disconnected series of isolated experiences but as a steady stream of variegated, layered sensuality. Eye is engaged by the visual aspects mentioned earlier for beauty. Ear is treated to the sounds of gentle conversations, music lessons and clinking pots and pans coming from apartment windows at dinner time. Sirens, church bells, street musicians, horse hooves on pavement, barkers touting fresh fruit, cars racing off from traffic lights, homogenized hum of street crowd conversations, loud arguments, guides preaching to tour groups, organ music from open church doors, ping of bicycle bells navigating through pedestrians, car horns coming up from behind and the reverberating, serrated buzz of vespas announcing their noisy entry to the street are other sounds that fall on the ear. The scents of Florence fill the streets too. As we move past open shop doors and street vendors, we detect leather, candle wax, soap, baking bread, coffee, pasta and sauces and, in the winter, roasting chestnuts and fireplaces. Palette is in play if we pause for street food along our path. Gelato, pizza slices, glass of wine, panini, fresh fruit are all in the street or open to it. In the streets, haptic sense fields and processes the city. Uneven pavement under foot, shoulder brushes of passers-by, cool door handles, weight of purchased goods, feel of merchandise we're browsing, grip of handshake, support of bench or café seat, flatware at lunch all engage sense of touch.

Integrated circulation

Attention is engaged, alert and occupied navigating the unlikely jumble of mixed movement types in the crowded streets. Roads are often narrow with thin sidewalks inadequate to sort out and separate the different movement types, directions and speeds. Such path configurations force all the circulation into the street space and compress it into a messy vitality of homogenized incompatibilities. All this results in pedestrian pinball that must be finessed. To this challenging variety of interwoven foot traffic now add the vehicles sharing the same narrow street space where people are walking. Cars, police cruisers,

delivery trucks, minibuses, horse drawn carriages slowly part the pedestrian flow in the street and force crowds temporarily to the street wall to pause and let the vehicles pass. Scooters use the noise of their reved engines to part the street crowds. Bicycles ping their "coming through" bells and frequently zip past at frightening speeds just inches away from pedestrians' shopping bags and arms. Walking moves us to learn street etiquette, the unspoken rules for navigating the town on foot.

Compressed heterogeneity, muted boundaries, exposure and immersion are terms that describe this congested mix of movement types. Incompatible modes of movement are squeezed together into narrow pathways dissolving the sense of boundary and personal space between disparate path users while the close quarters between people and vehicles fosters a feeling of vulnerability and openness to city life.

Serial punctuation

Movement experience through Florence streets in enhanced and reinforced by dense serial eventfulness, inflection and path punctuation. Progress and orientation markers along pathways are frequent and varied in type and power of impression. Large journey articulations are piazzas, river and bridges, major landmarks, busy cross streets and glanced vistas upside streets to fragments of familiar buildings. Less obvious are tops of church towers, glimpses of Oltrarno greenery, particular shops and street vendors.

Retail type, scale and density

The density, distribution, scale, and types of retail in Florence's core contribute to the town's walkability. Tiny shops specialize in one thing and, as a group, satisfy most daily needs. Store types are randomly spread across the town and this disbursement invites pedestrians to all parts of the city core to frequent favorite vendors. Foot traffic distribution fosters contact with other shops and supports economic and street life vitality. Stores are small and numerous on most streets, activating paths with a dense series of diverse window displays and shopping options that change every twenty or thirty feet. Activation is supported by narrow roads that promote close contact between pedestrians and store fronts.

Open shop doors

Many stores display wares in the street and, when weather permits, shops often keep their front doors open to enhance entrance invitation. This practice renders street boundaries porous and essentially changes path wall character at ground level from continuous solid plane to perforated edge. Our sense of street space shifts from sharply defined channel to a softer undulation and enhances our journey with side glimpses through doors into store space, merchandise, people, décor and action. Store interiors effectively become integrated with the street environment.

Foot-scaled intimacy

There is a close fit in Florence streets between walking scales and speeds and the grain of presentation and encounter the built environment offers pedestrians. Store windows, curbside displays, street performers, fruit stands, signage and graphics, entry treatments, façade detailing are designed, sized and positioned to fit the kinds of attention that those on foot are capable of giving them. This intimate fit has been refined and matured over centuries of walking tradition in Florence.

Path typology

Florence city blocks are small and so streets are numerous and frequent. This dense path network supports fluid, multi-option pedestrian navigation, city connectivity and promotes building access to street space light and air. The large number of streets translates to a rich and varied path typology. This generous menu of street types engages and enlivens our perceptual, attentional and intentional faculties

and invites our continual participation in reading and responding to the walking environment. Example street types are vehicular vs pedestrian, retail vs housing vs service, arterial vs secondary, prestige vs day-to day. Florence's street network evolved over centuries of changing historical circumstances and planning pressures. The result is a patchwork of rotated, colliding grids that create bent roads, odd intersections, shifting vistas and constant variation in the walking experience. Very few roads are straight over any distance. Numbness and inattention from routine and repetition are opposed by ever-new ways the city presents itself. Street typology includes path profile in section. Most roads in the town center are twenty to thirty feet wide and four to six stories tall. Varied building heights, bent streets, and jagged roof eaves create diverse sky shapes above and, together with time of day and season, light path space and surfaces in endless sun/shade/shadow geometries.

Temporal morphing

Florence walking conditions and street qualities constantly change with time, multiplying the types and intensities of path environments in a given street. This temporal morphing keeps path experience new, fresh, engaging, interesting and rich with attention-renewing variety and surprise. These attribute shifts can be subtle or bold and they apply to all street qualities and time scales; year, season, month, week, day, time of day and evening. Every environmental attribute mentioned in this paper is modified in some way at some time by changes in larger Florence contexts. In early morning before the town comes to life, streets are quiet and uncrowded. In the evenings, tour groups return to their hotels. Early restaurant crowds are solo tourists and families while late-night diners tend to be residents. Some trattorias close the street in front of their establishment at dinner and fill the road with tables and chairs to expand seating capacity. After work, popular enotecas overflow to fill sidewalks, streets and church steps with young singles enjoying a wine and good conversation. Piazza energy tapers off to a few grandparents gossiping on benches as children squeal and giggle while kicking a soccer ball. Tourist season peaks in late spring and early summer, congesting the Centro Storico with roving groups of travelers. Winter is rainy and windy. Tour crowds taper off. Street surfaces change from dusty matt to shiny wet reflections of overhead Christmas lights and glowing store windows. Florence's schedule of public events held in the city's piazzas is dense with markets, festivals, parades, races, exhibits and concerts. Happenings last from a day to a week and alter both piazza life and energy in the surrounding streets. August is the slow month in Florence. Temperatures can be in the hundreds in the heat-storing stone streets. Many shop owners close their store and head to the coast for breezy beaches. On Sundays, the town is quieter. Streets are less crowded with pedestrians and vehicles. Pace is slower, energy more relaxed, church bells more noticeable.

REFLECTION

Florence city form and street environments have been described with reference to related pedestrian occupancy and use. The descriptions offered in the paper are intended as thinking points, as conversation and debate topics and perhaps subjects for future systematic study. It is hoped that they will serve as windows onto other questions, other issues, other lines of thought and possibly other walkability paradigms.

Observations point to an overarching inference regarding walking in Florence and about the relationships between walking environments and pedestrian attitudes and behaviors. The accent in Florence's walkability is not on the traditional concerns for measurable path criteria such as safety, health, comfort, utility, proximity, convenience and efficiency. What makes Florence walkable are the messy, unmeasurable, difficult-to-define street qualities and human responses to them that often violate, oppose, ignore and contradict much of our walkability literature and design standards. Those things that

make Florence walkable might be difficult to defend in a budget hearing or a meeting to determine planning priorities. Florence does not make a convincing factual/statistical case for using its streets as planning models because its streetscapes are about the qualitative, ephemeral celebration of our humanity, enlargement of human faculties, enhancement of experiential quality and expansion of life possibilities.

CONCLUSION

Final thoughts take the form of questions that may serve to extend the conversation.

Transferability

In what ways and to what extent are the attributes and conditions that make Florence streets walkable transferable to other cultures and social systems? How do particular attributes match up with particular kinds of cultures? How might attributes need to be adjusted to fit with other social systems and pedestrian expectations? Which attributes are so specific to Florence that they would be difficult to employ in other cultures? Specifically, are the Florence attributes transferable to societies that: Are litigious? Prefer driving to walking? Consider walking a wasteful loss of productive time? Are used to orderly path systems and compartmentalization/separation of path users? Consider any activity that is time-consuming, inefficient, labor intensive and hands-on something negative? Many of the attributes of Florence streets are symbiotic. They work together to intensify and support each other's effectiveness. What is lost when individual/isolated attributes are transferred to new projects?

New projects

Florence's street qualities have evolved and matured over centuries of urban modification and long term, piecemeal adaptations to existing urban form. Can street conditions that make Florence a walkable city happen in projects designed and built all at once? Does the Florence model suggest incorporating salvageable aspects of existing environments in new projects to promote place-making, environmental character and identity? In science/business-centered societies, can qualitative reasons for the value of particular street qualities be effectively argued?

Corona virus

If the corona virus persists long term and remains a factor in urban policies and behaviors, how will this affect the attributes that make Florence streets successful walking environments?

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"CITIZEN PROFESSIONALS" AS CIVIC INTERMEDIARIES: AUTONOMY AS A SOCIAL VALUE IN THE MAKING OF COMMUNAL SPACES FOR THE NEIGHBOURHOOD

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INTRODUCTION

An increased interest of financial private markets into housing has caused civic concerns in European capitals about the way these cities remain accessible and inhabitable to its residents. An often-heard criticism is that these investments in the housing market have resulted in rising rents and unsociable neighbourhoods, potentially pushing out lower- and middle-income residents. Recent civic protests on the lack of affordable housing have demanded of politicians to put a halt to the further commodification of housing. Another trend is that citizens – or civic actors – have become more engaged in neighbourhood development so as to contribute to creating more sociable places.

Neoliberal politics have caused Western welfare states to increasingly outsource public services such as social housing, public transport, health or education to private sector and voluntary (third sector) companies. As a result of these politics and combined with stagnating production levels, housing corporations were compelled to sell parts of their social housing stock to keep their financial balance sheets healthy. At the same time, Western governments have introduced participatory schemes to encourage civil society to assume more social responsibilities: Not only did these governments consider citizen participation the missing link to tackle community development, urban regeneration or health care, they also expected citizens to perform more communal tasks that were formerly executed by governmental bodies. With policies like the "Big Society" in the UK in 2010, [1] the "participatory society" in the Netherlands in 2013, [2] or the "Berlin Strategy" in 2015,[3] governments relied on the citizen to carry out activities such as providing for elderly or sick family members, engaging with social activities, or creating communal meeting places for the neighbourhood. This change from government towards local governance started in the 1980s and has altered the roles of civil servants and citizens alike in neighbourhood development and civic participation.

An increase in civic protests and initiatives in today's Western capitals that focus on the changes in the housing market is not only a response to an ever more tightening housing market but could also be seen as a new self-understanding of citizens who fight for affordable working and living conditions. Apart from a few exceptions, they no longer tend to make their voices hear by squatting, but their civic initiatives rather aim to realize showcase projects for others, in negotiation with government and private stakeholders. The social endeavours to contribute to the liveability and affordability of (inner-city) districts show parallels with the protests on unused vacancy in European capitals in the 70s and 80s; protests that were initiated by squatters and rental groups to fight a politics of housing commodification that sustained social political issues.

This article will look into the practices of civic actors in Amsterdam and Berlin that re-use derelict buildings in order to realize communal living and working spaces for their neighbourhoods. One is the cooperative project of the *Haus der Statistik* at Alexanderplatz in Berlin, a multiple stakeholder enterprise to develop a former seven-storey government building into a mixed living, working and communal area for the neighbourhood. The other one is *De Kerk* in Amsterdam that runs a low-budget community space for the neighbourhood. Both ongoing projects exemplify civic activities that aim to influence city planning and private (re)development in the context of the current housing crisis. In these cases, the neighbourhood forms the site of contestation between public institutions and members of civil society who want to contribute to the common good. Using the sensitizing concept of the citizen professional (CP), the article will attempt to establish whether these actors could be approached as new civic intermediaries in urban governance who negotiate the use of a city together with governmental, private or civic stakeholders. Therefore, the article will first introduce the concept of civic intermediaries and then apply it to the cases. It argues that policy is not only "performed on the ground"[4] by those who have been employed by institutions, but that it is increasingly scripted by practitioners from civil society.

CIVIC INTERMEDIARIES

In recent decades, academic research has recognized that individual actors, such as the initiators of the Amsterdam and Berlin cases, make a difference on how policy is made.[5] The focus on intermediaries in urban development has increasingly shifted from an institutional perspective to an individual one. In the nineties, intermediaries who operated on neighbourhood levels were described as "street-level bureaucrats" and "front-line workers" in the literature.[6] As policies have become dependent on active citizens and self-reliant civil servants, the designation shifted from street-level bureaucrats to "social entrepreneurs"[7] and "civic entrepreneurs"[8] in the 2000s. As a result, state-employed intermediaries have been asked to operate more and more as entrepreneurs, and not so much as bureaucrats, resulting in a blurring of boundaries between institutions and civil society.

It was not until the 2010s that individuals in neighbourhood development projects increasingly claimed intermediary positions. These included "everyday makers", [9] "deliberative practitioners",[10] self-employed and self-assigned "city makers",[11] to "entrepreneurial citizens"[12]– to name just a few. These different labels and types of intermediaries can be considered a consequence of a shift towards entrepreneurial selves that has taken place since the 1980s.[13] Entrepreneurial types have come in different shapes and colours, performing a combination of civic, social, and political tasks (see Figure 1 for a simplified scheme of intermediaries active within the urban governance field).

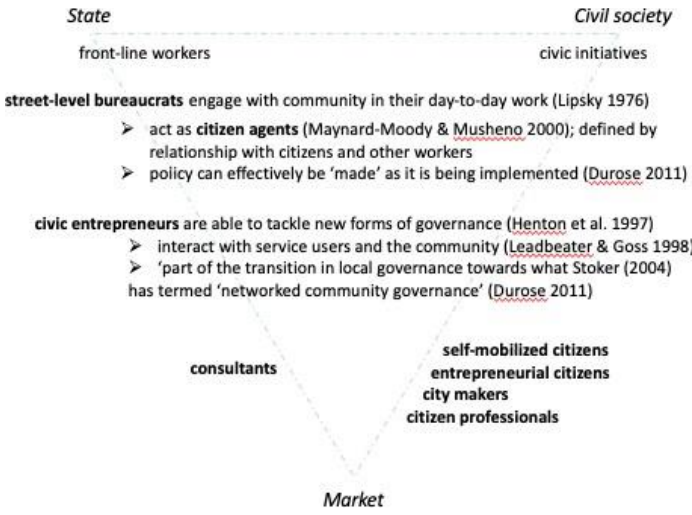

Figure 1: Scheme overview civic intermediaries within governance triangle of state, market, and civil society

While the different types of intermediaries active in neighbourhood development projects have been well-represented, there is still a lack of research that investigates the ongoing practices of civic actors that have come into being by the new modes of governance in public administration and politics.

Methodology: sensitizing concept Citizen Professional

To find out how these civic actors fit in the existing body of literature, I have employed the sensitizing concept [14] of the "citizen professional (CP)"[15]. This concept serves as a point of departure and allows me to approach the civic actors without a predetermined set of values in mind. [16] The CP is closely affiliated with the different types of individual civic intermediaries of the 2010s, and positions herself in the field of new modes of governance in public administration and politics. The CP as a sensitizing concept aims to describe different combinations of civic and professional engagements that sometimes overlap and reinforce each other and sometimes contradict each other. The CP can refer to inhabitants or to professionals who operate in, live in, or exploit the same neighbourhood. Their professional backgrounds range from artists, architects to social workers and academics.

Through ethnographically inspired fieldwork in Amsterdam, Berlin, and Vienna, I interviewed CPs from socio-cultural projects that range from entrepreneurial businesses to low-budget living and working communities. The empirical analysis is based on thirty semi-structured interviews with CPs and "knowledgable" experts, combined with policy and city-promotion documents. To identify key concepts, I coded the material with Atlas.Ti., focusing on similarities and differences on how they envision future perspectives on life and work; how they legimitiate the re-use of empty housing stock for a communal use; and how they develop tools to include communal projects within urban policy.

HAUS *DER STATISTIK* AT ALEXANDERPLATZ IN BERLIN AND *DE KERK* IN AMSTERDAM: TWO CIVIC INITIATIVES

Two civic initiatives will serve as examples for the emergence of a possible new type of civic intermediaries: The Haus der Statistik in Berlin and De Kerk in Amsterdam (see Figures 2 and 4 for an impression of the cases).

Figure 2: Haus der Statistik, Berlin

At Haus der Statistik in Berlin, a group of artists and other creatives wanted to safeguard the derelict building that housed the former secret police (STASI)-archives from demolition. Therefore, they mounted a banner on the empty building in 2015 to announce a redevelopment of the building that would secure affordable, long-term, manifold, and centrally located workplaces. The staged event received a lot of media attention and was encouraged by a 'like' on Facebook by the mayor of Berlin. The ensuing public debate on this symbolic inner-city building prevented its demolition. Subsequently, the civic actors launched the initiative Haus der Statistik in order to elaborate a showcase project together with public and private stakeholders.[17]

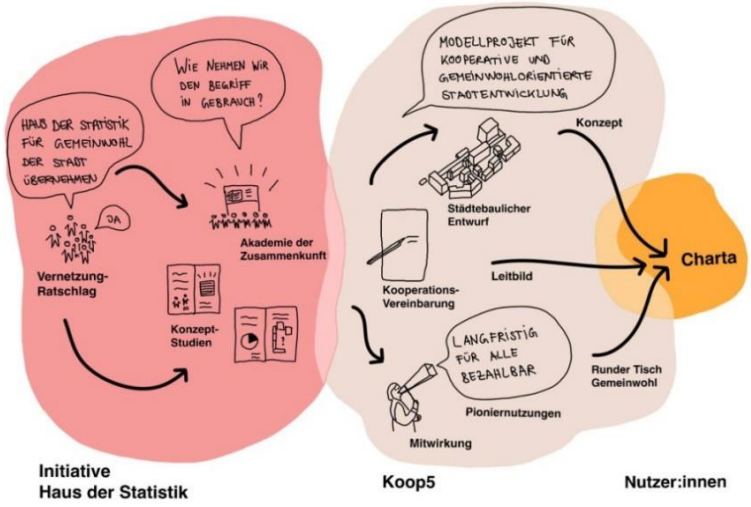

Figure 3: Event for the common good, Haus der Statistik @ZUsammenKUNFT 2020

Whereas the Haus der Statistik looks like a conventional public-private partnership, the civic actors aimed to open up the planning process to the residents and citizens of Berlin so that – quite literally – everybody can have a say. In addition, they strived to develop tools for public participation and cooperation for future urban development. The scope of the project entailed an architectural competition to renew the building complex, a cooperative process of decision making for the design proposal, implementation of temporary civic initiatives - pioneer uses - and a constant involvement of civil society

(see Figure 3 for an overview of cooperative activities). A showroom in a former bike shop at Haus der Statistik serves as a communal meeting place for all stakeholders.[18]

Figure 4: De Kerk, Amsterdam

As for the second case, De Kerk was started as a temporary living and working project in North Amsterdam. In search of an affordable living place, a group of nine people entered into a five-year contract with a local housing corporation to re-use the derelict building. Their aim was to provide a communal space for the neighbourhood so that everybody could make use of it. They established the foundation Bildung and defined the organizational structure as well as the activities while they were doing the project - an approach we can describe as "reflective practitioners".[19] Since the start of their social engagement and cultural programming in 2015, the group has professionalized. In search for a new location, they have started promoting themselves as vacancy managers and social developers of derelict buildings who offer and develop places where community initiatives, creative entrepreneurs and local residents can set up activities that will benefit the neighbourhood.[20] With this shift towards becoming a socio-cultural service provider, they also hope to meet the requirements of the recent municipal "Action Plan for Housing Cooperatives," [21] a policy that aims to expand the much-needed social housing in Amsterdam by sustaining private initiatives that focus on collective living and self-management.

ANALYSIS OF CASE STUDIES

When interviewing the civic actors on the social values they harness in the making of their communal projects, the analysis revealed that "autonomy" is a key concept. Autonomy was used in different ways in the interviews and documents: One was the pair of concepts of "autonomy" and "communality", the other that autonomy was employed as a policy tool.

Autonomy and communality

As the interviews have shown, autonomy as a concept does not appear on its own but is paired with communality. Although this pair is in a state of tension with each other, they contribute to the driving forces behind the civic initiatives. CPs define autonomy in combination with the creation of a community and the creation of communal places for the neighbourhood. Autonomy thereby carries a social meaning instead of an individualistic one. What we found in the cases is that autonomy is lived as a form of interdependence and not as an attempt to reach individual independence. Such a definition of autonomy is similar with a feminist relational perspective: Without being part of a social network to defend a state of autonomy, CPs are not able to become autonomous in the first place.[22]

The autonomy CPs strive for shows that it is combined with the self-governance and the self-management of spaces and people. This outcome reminds us of the definition of autonomy in an

etymological sense that derives from the Greek "autos" (self) and "nomos" (rule). Autonomy is established as a boundary agreed on by a ruling entity, such as the society or the state, or an individual or citizen. CPs all speak in the language of autonomy, in the sense that they gain autonomy over the "other," that they want to self-govern their spaces, or that they have to supervise the self-governance they have achieved:

Instead of being at the mercy of a landlord or being ripped by a corporation or being indebted to a bank or waiting for municipal lists, we self-produce and self-manage our spaces of living, working and socializing. And that is maybe key. That is the beginning step for anything else.[23]

A related concept that plays an essential role in the cases is self-organization: by managing the spaces themselves, CPs are able to reduce costs of living. They are in charge of and can decide what they are doing with their resources and time. Therefore, they acquire a feeling of autonomy that they are able to choose and decide for themselves. This also concerns whom they let into their spaces and open up their public domain to - which contradicts the "all-inclusive" approach CP say they strive for. Other autonomous groups that use their communal spaces should for example be independent of political or religious affiliations:

And of course, they [citizen groups from the neighbourhood] do not only do their meetings [in our communal space], but also hold events sometimes. Autonomous. Yes, so not party affiliated, or in other words, not parliamentary. Yes, essentially grassroots. Of course, we have already rejected groups who wanted to meet here, all kinds of political youth organizations, church organizations, all those who, so to speak, have their own spaces.[24]

CPs can demonstrate how life can be lived differently by living in a communal setting, a characteristic that is inherent to the communes of the 1960s as well as to living groups in our times. 25 By adopting this lifestyle, CPs hold up different political and social values that correspond mostly with those of the protest and squatters' movements of the seventies and eighties: resisting the commercial real-estate market, advocating for a more affordable inclusive city, protesting against the commodification of housing – in other words, keeping self-governance and autonomy. Policies were implemented at the time that still have an impact on civil society and urban planning today, such as a program for self-organized housing projects by "Structural Self-Help"[26] that was supported by the Senate of Berlin between 1987 and 2001, the consultation with residents within the "built for the neighborhood"[27] perspective in the Netherlands, or the cultural incubator policy to sustain the city as creative breeding grounds in Amsterdam.[28] At the same time, restrictive policies have criminalized the act of squatting empty buildings.[29] Although squatting has not entirely disappeared from European cities, it has decreased extensively.

In general, there is a broad academic interest in the impact of the squatter's movement on today's political and urban landscape, [30] and the major role the concept of autonomy has played in social movements and protests.[31]

One of the recent studies into a squatter's community in Amsterdam investigated the notions of the "autonomous self" to describe the selfhood of a squatter's community: In order to become autonomous but also to be able to realize themselves, squatters had to conform to the group's ideals, which included notions such as independence, non-conformism, self-realization, anti-capitalism, and self-reliance.[32] Autonomy within a squatter's community entailed that members had to stay recognized by the group and accept the communal values the group strove for, a process that required a constant dialectic to perform as an individual as well as to be recognized by a group. Although there are resemblances between the CPs and the squatters' ideals in the seventies and eighties in their wish to be autonomous

and communally engaged, CPs no longer "squat" but negotiate with governmental and private stakeholders to make use of empty premises.

Autonomy as a policy tool

As municipalities and housing associations are not able to provide sufficient social housing in the years to come, [33] private and governmental stakeholders have realized that self-management can help to alleviate the provision of social housing. In Amsterdam, within the *Action Plan for Housing Cooperatives*,[34] the municipality has recently decided to enhance communal living models and empower civic initiatives. The next two years they aim to realize fifteen housing cooperatives and build 7,000 social housing units before 2025. Through a series of tenders, the municipality opens up plots of land to enable an open competition. [35] This need for pro-active policy making to establish showcase projects is also experienced in other cities. Before the implementation of this Cooperative Housing Act, civic initiatives were often not taken seriously by civil servants when they wanted to build a cooperative and realize communal living and working spaces:

No, I mean as an example, you [as a civic initiative] really must have a flabbergasting totally convincing initiative. And if you don't have that, then it becomes often very difficult to convince policy makers. But that does change.[36]

Similar to Amsterdam, Berlin incorporated the civic demand for a cooperative approach to city making in the coalition agreement of 2016: fourteen civic projects were included that will serve as showcase projects, the *Besondere Orte Berlins*.[37] This policy document aims to encourage new collaboration on a political and institutional scale with broad participation of civil society. Although this cooperation agreement shows the political will to think differently, the term "showcase project" illustrates that the city government does not know exactly how to provide affordable spaces to live and work in the neighbourhood. The CPs, as citizens, have to show to the City of Berlin, with Haus der Statistik as one of the showcase projects, how projects can be done differently instead.

CONCLUSION

This article has explored whether CPs can be approached as new civic intermediaries to bridge the gap between policy and civil society.

CPs aim to create socio-cultural spaces that serve the community and deliver tailor-made solutions for the neighbourhood. As artists, architects, or academics, CPs possess professional skills that include sociability with different community groups as well as negotiation skills with governmental and private stakeholders. CPs strive to contribute to creating a more socially viable place and to introducing policies that include citizens more actively in urban development. By showcasing exemplary projects, CPs address shortcomings in current policies, initiate new models of ownership, and deal with the re-use of derelict public housing for the common good. This makes CPs active, self-reliant, and entrepreneurial citizens. Although CPs articulate the wish for an inclusive city, they represent a fragmented and arguable "privileged" part of the population that can "afford" or "dare" to invest time in exploring other ways of living and working.

Recent policies like the *Action Plan For Housing Cooperatives* in Amsterdam or the *Besondere Orte Berlins* in the Coalition Agreement of Berlin have shown that public administration seeks to incorporate demands of civil society. Values such as self-governance, autonomy and communal living have become part of these policies as cooperative solutions for a tight housing market. However, practices of CPs still require a larger civic "street-credibility", so that they are taken more seriously by governmental and private parties when developing communal and cooperative projects for the neighbourhood. CPs

have a variety of social and professional skills - skills they wish to deploy on a personal and voluntary basis.

If we consider CPs as new civic intermediaries who negotiate the use of a city together with governmental, private or civic stakeholders, this perspective will offer a conciliating view in which both the interests of political and economic stakeholders potentially could be served, while also providing an increasingly self-emancipated civil society with democratic tools that allow them to appropriate bottom-up inspired neighbourhood developments in urban planning. Further analysis of the findings should link the values CPs hold to the specific places exploring how urban policies and practices of CPs interrelate and could possibly accommodate a broader implementation of civic tools in urban planning. Another concern for future research will be the question to what extent CPs as self-selected representatives of civil society can be legitimized to embody the wishes and demands of a community.

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TRANSITIONAL SPACES, LIVING PATTERNS AND NEIGHBOURHOODS

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INTRODUCTION

Outdoor and semi-outdoor transitional spaces of houses define the interface between house and neighbourhood. Although these spaces are controlled by planning and building regulations, they become extensions of the house and play a vital social and environmental role in the house as well as the neighbourhood. In Sri Lanka, as a response to urbanization resulting in decreased plot sizes and, changes in environmental and social conditions, these spaces have undergone change in urban contemporary houses to be what they are today. Old transitional spaces like front verandas which contributed towards "eyes on the street" are replaced by balconies, upper floor terraces and roof gardens. However, their use and role in the current context is yet to be explored. Based on a Pilot Study carried out using graphical analysis of plan form and interviews on use of space, this paper explores how the evolution of transitional spaces addresses the issues of urbanization in residential neighbourhoods in Colombo the capitol of Sri Lanka.

OUTDOOR AND SEMI-OUTDOOR TRANSITIONAL SPACE

Outdoor and semi-outdoor transitional spaces of houses are the spatial component that is in-between public-private realms[1]. They serve to both segregate and connect indoor – outdoor spaces, and leads to physical, functional, visual, social and spatial interactions. Historically and traditionally, outdoor and semi-outdoor transitional spaces like verandas, patios, terraces, front-yards, back-yards and courtyards were an integral part of the house in tropical and sub-tropical regions and acted as buffer zones climatically as well as socially. These transitional spaces varied as per their geographical location. Brazil had verandas[2], where India[3] and Sri Lanka[4] had verandas and courtyards. Urban houses in China[5] were courtyard houses. Verandas were also common in tropical countries like Malaysia[6] and Philippines, and it was present in Australian Colonial house[7]. The physical character and the socio-spatial role of these spaces have undergone change now to respond to the current needs; physical, environmental and social. As the social as well as physical interface between house and neighbourhood, the character of this in-between space not only affect the house form but also the urban form.

SRI LANKAN CONTEXT

Rapid urbanization with high demand for housing has created numerous issues to deal with when designing houses and neighbourhoods in cities. In Colombo the capital city of Sri Lanka, older residential areas are converted into non-residential activities due to the growth and expansion and rising land values, thus, moving the low-rise residential developments to the urban satellites in the outskirts of

Colombo city. These residential neighbourhoods are the living centres for people in cities and play a vital role in their day-to-day life. A recent study on land use in Colombo found that, high urbanized centres are visible in newly developed areas outside Colombo city, where the rural land uses are rapidly converted into urban activities. In Kaduwela administrative division, one of those urban centres outside Colombo city, 61% of the total land use is for residential purposes. [8] This shows the growing demand for residential neighbourhoods around Colombo city. Although, lower-middle and low-income group housing are served through state funded subsidized housing schemes, middle-income and upper middle-income housing are privately developed. [9] In Sri Lanka, apartment living is a new concept yet to be experienced by majority of the people in middle income group. Hence, most of the middle-income residential neighbourhoods are with privately built, single detached houses. Niriella's research on the housing market in Colombo revealed that, there is a rising demand specially among middle and upper middle-income groups for private houses in housing schemes. "It is the dream of many people of present Sri Lankan society to live in a modern middle-class house in an urban area. This trend could be the outcome of a long-term urbanization and liberalization process in Sri Lanka. Hence within the urbanization process, even some of the rural people are motivated to sell their movable and immovable properties in the village and purchase a house in a Colombo housing complex". [10] Since these comprise of a larger area of urban land as primary residential areas and, there is a growing demand for housing in this category, exploring the contribution of house to neighbourhood becomes important. Majority of residential neighbourhoods in Sri Lanka does not have walkable pedestrian lanes or common public spaces like parks. Therefore, transitional spaces between house and street as well as on the sides in-between houses and the backyards, play a major role as a place of contact in a neighbourhood. Not having useable transitional spaces on the street façade and around the house means there will be no interaction between house and neighbourhood. Apart from that, lack of continuity of open spaces along the street could create negative environmental impacts such as, no continuous green buffer zone between houses and street to cut down heat, dust pollution etc. Therefore, it is vital to explore the changing socio-spatial role of house to neighbourhood interface in order to understand how it can contribute towards future neighbourhood developments.

SRI LANKAN HOUSE AND EVOLUTION OF TRANSITIONAL SPACES

Sri Lankan housing design has evolved through many phases, starting from the vernacular rural house and pre-colonial 'Walauwe' (manor house of the upper class) to 450 years of colonial influence since 1505 under 3 different colonial rulers (Portuguese, Dutch & British) to post-colonial experiments to what it is today[11]. It is evident, that there are some major influences that had a direct effect on the design of the post-independence house (after 1948) and subsequently, the contemporary house. The reducing plot sizes that require innovative ways for space organization[12] and changing lifestyles of the Sri Lankan society[13] were two important factors. Adaptation of international type plans and, the contributions by leading architects like Geoffrey Bawa[14], Minette de Silva[15], Valentine Gunasekara[16] and others[17], searching for a new Sri Lankan style, also had a major impact. Outdoor and semi-outdoor transitional spaces in most contemporary houses have changed to; no front garden space and solid boundary wall, rear space and internal courtyards used to get natural light and ventilation, blank walls on sides, balconies on upper floors, introduction of roof terraces and roof gardens and verandas on to rear space. However, since majority of the houses are privately designed and developed, the interpretation of these elements varies from house to house. As a result, they influence the spatial structure of a house as well as overall neighbourhood morphology. In some contemporary houses, outdoor and semi-outdoor transitional spaces are also re-introduced as a vital tool in climate responsive passive design[18] to provide

cross ventilation, act as buffer zones and shading devices, and as outdoor living spaces. However, providing spaces does not always mean that they are used as expected. The residents sometimes modify them, abandon them or convert them into other spaces, and the purpose of its introduction to the house as well as neighbourhood will be lost. Does this mean that a specific type of a transitional space will have a specific role? Would it be functional, climatic, social or a combination of the above? Will there be a connection between the spatial character of a transitional space and its use?

PILOT STUDY

A Pilot study was carried out using a smaller sample of houses to explore the changing socio-spatial role of outdoor and semi-outdoor transitional spaces of middle-income houses over the times concentrating on urban houses after independence in 1948. Based on previous research by Paranagamage, three significant periods were identified to study Sri Lankan house form. Pre-independence (before 1948), Post-independence / Pre-open economy (1948 – 1977) and Post-open economy (after 1977 introduction of open economy). These periods with major political changes were taken as milestones for social and economic change[19]. Although the 'middle-class' as a significant social class emerged during British colonial period (1796 – 1948), the house types before that were studied under Pre-Independence to understand the historical reference and roots that have influenced the spatial organization of the house. For the Post-independence / Pre-open economy period, samples were taken from 1950s – 1980s. For the contemporary period, the research analysed houses built after 1990 for two reasons. One, to be closer to the present time to understand the current trends and two, to give enough time for the change of economic policies in 1977 to have substantial effects on social and economic structure and influence house forms. A smaller sample (11 houses) was selected to cover some of the popular typologies of houses under the three different periods mentioned above. House drawings and photographs for the Pilot Study were mainly obtained from published material (books, journals and websites), except for the 2 houses visited and interviewed. For those 2 houses, drawings were obtained from house owners.

Pilot study investigated the socio-spatial role of changing outdoor and semi-outdoor spaces of single detached middle-income houses through graphical analysis of plan form using space syntax methods and interviewing residents on 'use of space'. Visiting and interviews were carried out only on 2 houses from the selected sample (1 - Post-Independence and 1 – Contemporary). Interview and observation findings were included in the analysis when discussing the social dimension in relation to use of space and interactions with neighbourhood.

SPACE SYNTAX STUDIES

With their extensive writings on 'social logic of space', Hillier and Hanson bring in a tangible meaning to the un-tangible socio-cultural aspects of house forms. "The fundamental proposition of the syntax theory is not that there is a relation between settlement forms and social forces, but that there is a relation between the generators of settlement forms and social forces"[20]. Hiller describes the theories developed through 'Space Syntax' analysis as, "the techniques of 'configurational analysis' – of which the various 'space syntax' techniques are exemplars – that have been built from this idea have made it possible to bring the elusive 'pattern aspect' of things in architecture and urban design into the light of day, and to give quantitative expression to the age-old idea that it is 'how things are put together' that matters"[21]. Based on the above assumption, space syntax techniques were used as a method to graphically analyse plan configuration of different house forms and to compare them using same parameters.

In Space Syntax, buildings can be represented as 'convex maps' (least set of spaces that covers the system) in which rooms are treated as 'convex spaces' and adjacent accesses as links[22].

- **Justified Graphs (J-Graphs)** - were generated based on the Plan form and taking street as the Root space. In these graphs, all spaces of the house are appointed depth values according to a chosen space called "the root space" or "the carrier." According to their depth values, all the spaces are placed on a horizontal line numbered with the depth of that space. All the spaces that have the same depth values are placed on the same line.
- **Connectivity –** Analysed based on number of points that are directly connected to the intended point (this considers only permeable physical connections, but there could be other direct and partial visual connections)
- **Comparison - Movement Patterns – 'Permeability Pathways' (PP) -** Movement patterns were analysed based on "Space Syntax" using the following:
  As per Hillier, "movement we can define not as the small local movements that may be associated with some forms of occupation, but movement between spaces of occupation, or movement in and out of a complex of such spaces"[23]. With reference to the graph given here (figure 1), Hillier explains[24];

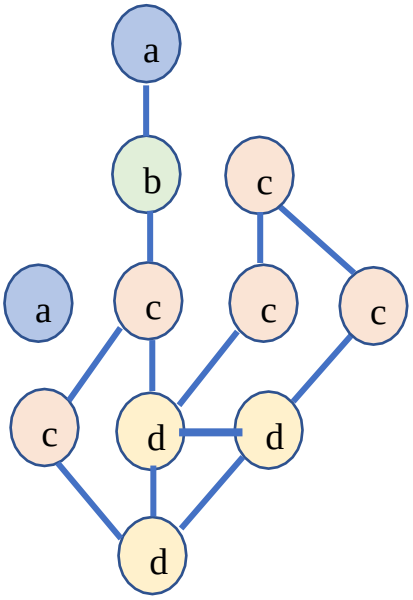


Figure – 1 – Justified Graph (Source: Hillier 2007)

- 'a' Spaces – are the ones with a single link and by definition "dead-end" spaces. In their topological nature, they are occupation- only spaces.
- 'b' spaces – are spaces with more than one link but, cannot in themselves be dead-end spaces**, but must be on the way to (and back from) at least one dead-end space**. 'b' type spaces raise the possibility of through movement but also control it strongly.
- 'c' spaces – spaces which lie on a single ring. Movement from a 'c'-type spaces through a neighbour need not return through the same neighbour but must return through exactly one other neighbour. 'c' type spaces also raise the possibility of through movement while also constraining it to specific sequences of spaces, though without the same requirement for the return journey.
- 'd' spaces – Spaces which lie on more than one ring. Movement from 'd' type spaces through a neighbour has the choice of returning by way of more than one other neighbour. 'd' type space

permits movement, but with much less built-in control because there is always choice of routes in both directions.

SELECTED HOUSE SAMPLES

Justified graphs were generated for each house taking street as the root space. (Table – 1)

Pre-Independence period

PRE-I-A – Pre-Colonial / Colonial Dutch 18th cent and renovated in 1805
PRE-I-B – Colonial British – 1871
PRE-I-C – Colonial Dutch – 17th Cent.

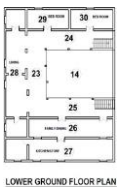
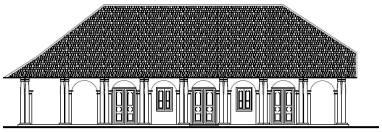
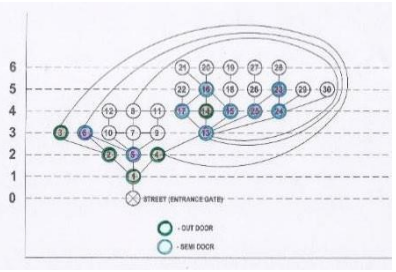
Post-Independence / Pre-Open Economy period

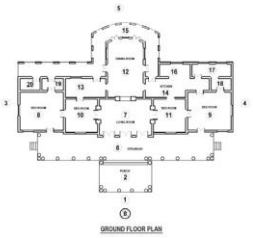
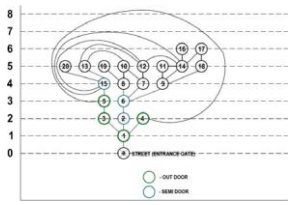
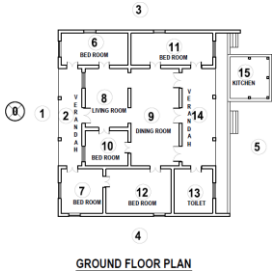
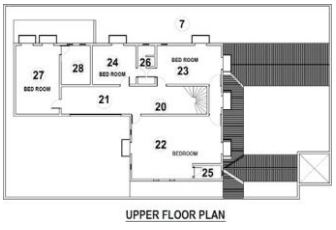
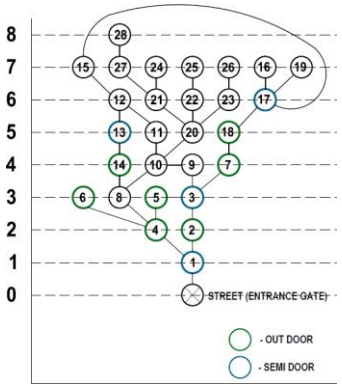
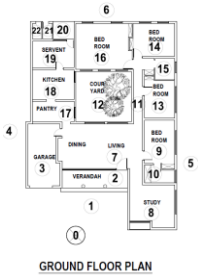
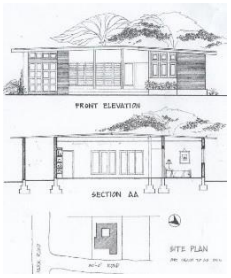
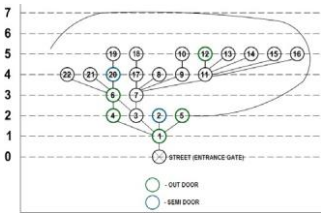
POST-I-A – 1962 – Architect designed new innovations - house by Geoffrey Bawa
POST-I-B – 1960s – Combination of typical 'American Style' with traditional central courtyard
POST-I-C – 1977 – Typical 2-storeyed 'American Style'
POST-I-D – 1970s – Typical 'American Style' the most common house typology for middle income group during this period - (visited and interviewed)

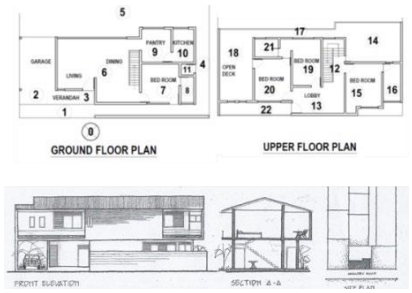
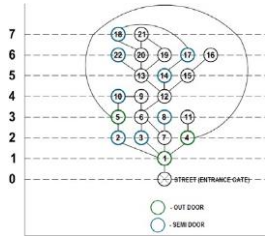
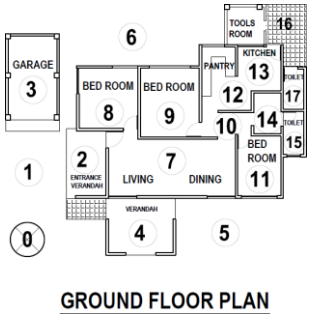
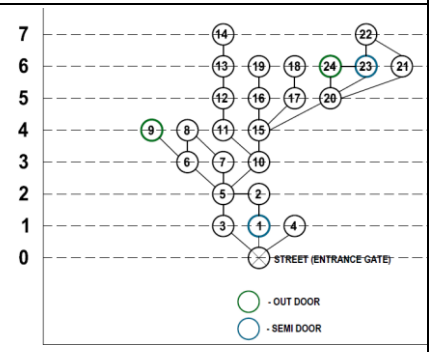
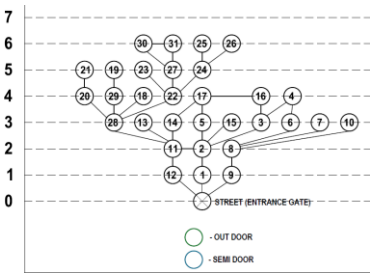
Contemporary period

CONT – A – 1990s – Site specific architect designed
CONT – B – 2009 – Site specific architect designed (visited and interviewed)
CONT- C – 2016 – Developer designed and built housing scheme
CONT- D – 2019 – Builder Design

Outdoor and Semi-outdoor transitional spaces were studied under the following:
Spatial Hierarchy and thresholds, Movement Patterns, Connectivity and House to Neighbourhood Interface. The analysis discussed transitional spaces in terms of its Role, Use, Meaning and Space for Social Interaction.

PRE-INDEPENDENCE PERIOD (Before 1948) – PRE-I HOUSES		
House	House Drawings – Plans & Elevations	J-Graph
PRE-I-A Pre-Colonial / Colonial Dutch style house from Kandy built in 18th century.	   (Robson 2016– p.110)	

PRE-I-B Colonial British house from Colombo. Built in 1871	 (Pieris 2013 – p.51)	
PRE-I-C Colonial Dutch House from Unawatuna built in 17th century	 (Robson 2016 – p.121)	
POST INDEPENDENCE / PRE-OPEN ECONOMY PERIOD (From 1948 – 1990) – POST-I HOUSES		
POST-I-A House – Colombo 7, built in 1962 Designed by Geoffrey Bawa Architect designed modern interpretations	   (Robson 2016 – p.180)	
POST-I-B House Colombo 5 built in 1962 'American style' inspired house	  (Kaluarachchi 2003)	

POST-I-C House – Colombo 7, built in 1977 'American style' 2 storey house	 (Kaluarachchi 2003)	
POST-I-D House – Kirillapone, Colombo 6, built in 1970's Typical 'American Style' house	 GROUND FLOOR PLAN Drawings from Owner	
CONTEMPORARY PERIOD (1990 – onwards) – CONT HOUSES		
CONT-A House – Nawala Road, Colombo Built in 1990's Site specific architect designed	 (Powel 2015)	
CONT-B House – Colombo 7, Built in 2009 Site specific architect designed	 Drawings from Owner	

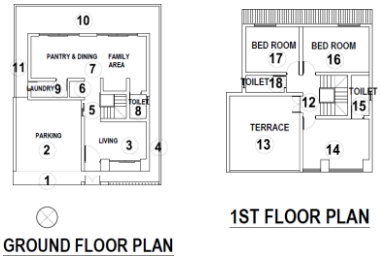
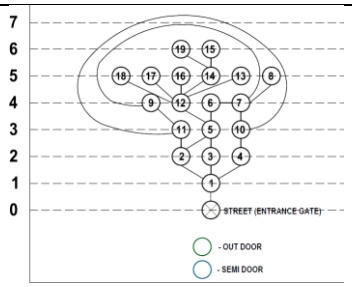
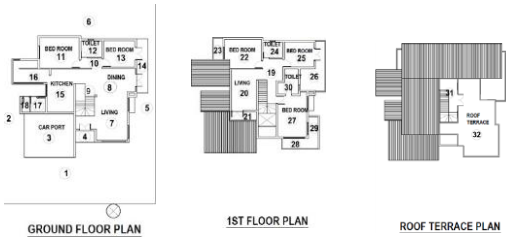
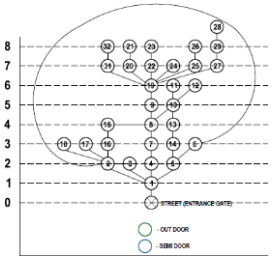
CONT-C House – Colombo, built in 2016 Developer designed and built in housing scheme	 Prime Lands Brochure	
CONT – D Builder design 2019	 lexduco.lk – Lex Duco Website	

Table 1 – House Samples and J-Graphs

Spaces were also categorized as per Table 2

SPACE	DEFINITION	USER CATEGORIES
PUBLIC	Used by public known and unknown (Street)	Family members, visitors, public (known and unknown)
SEMI-PUBLIC	Include Casual visitors with less time and interaction (with one or few family members)	Family members, visitors, household helpers (live-in and live-out), casual visitors (marketing and salespeople, donation collectors and similar categories)
SEMI-PRIVATE	Include visitors who may spend more time and will have more interaction (with more or all family members)	Family members, family visitors, Live-in and live-out household helpers
PRIVATE	All members of the house and house guests	Family members, House guests, live-in household helpers
INTIMATE	Only one or few members of the house	Family members, House guests, live-in household helpers

Table - 2

Analysis on Movement Patterns based on distributions of ‘a’, ‘b’, ‘c’ and ‘d’ type outdoor and semi-outdoor spaces as given in sample Figure 2, shows that there is an increase of ‘a’ type occupation only spaces in contemporary houses. Spaces with through movement have reduced over time.

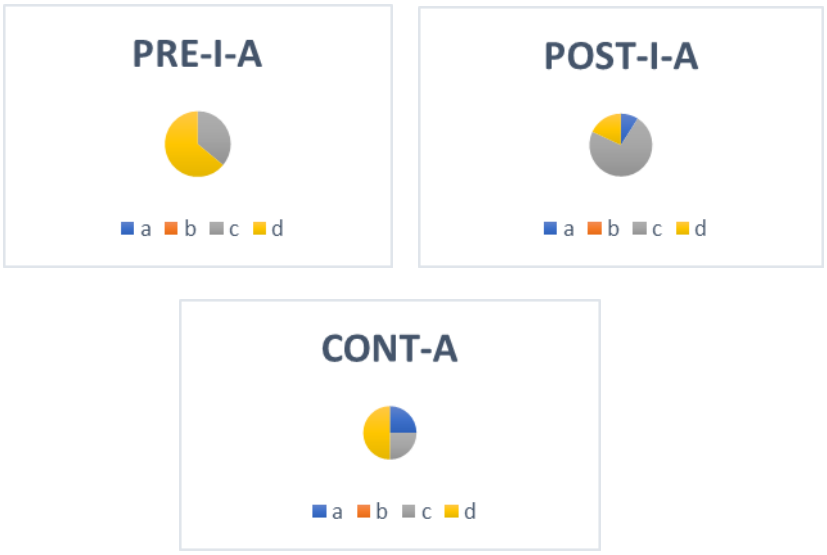


Figure 2.

Analysis on connectivity based on number of connections for each outdoor and semi-outdoor space as given in sample Figure 3 shows that, number of connections have decreased in contemporary houses.

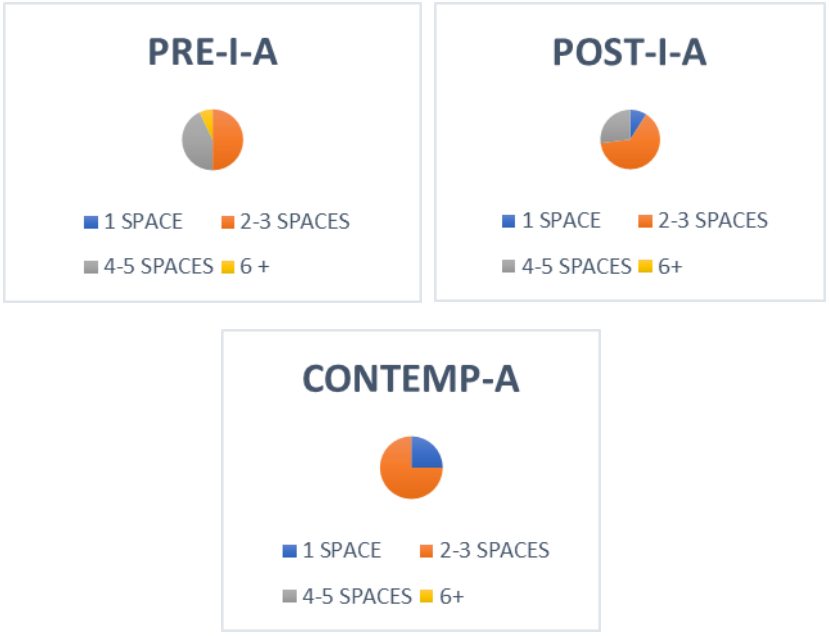


Figure 3.

CONCLUSION

Based on the sample taken for Pilot Study, Contemporary houses have many variations in outdoor and semi-outdoor transitional spaces addressing the challenges of urbanization. Spatial analysis indicates some spaces although given (example intimate balconies which are ‘a’ type dead end spaces with low connectivity) create less opportunities for use. This finding is confirmed through the interview. The location and physical character of these spaces are suitable for both visual and physical neighbourhood

interaction. However, lack of use or no use may make them redundant spaces. It is also confirmed through the interview on CONT-B house, that the space with highest connectivity (service court) is the most used space. By being a 'c' type space on a ring, it makes people pass through it to access other spaces (see Table – 1). Service court may also have high useability due to the specific function attached to it, whereas the intimate upper floor balconies do not. A connection can be seen between the spatial analysis and Use of space, in this specific example of CONT-B house. However, to reach more concrete conclusions it must be compared with other examples. Spatial analysis on the sample houses shows that through movement as well as connectivity to other spaces have reduced in transitional spaces over time. More interviews on use of spaces in different house types as well as in different neighbourhoods will help to decipher a meaning to spatial configuration and social role. Type of neighbourhood where the houses are located, and specificity of the user group in terms of number of residents in the house and age groups were excluded from Pilot Study. However, all houses were from the middle and upper-middle income group and in an urban setting except for historical examples of PRE-I period. Since the pilot study was based on a smaller sample and had limitations, it needs to be further investigated to come up with more general results and substantial outcomes. Nevertheless, Pilot Study revealed that spatial configuration of outdoor and semi-outdoor spaces has changed significantly and there could be a connection between spatial role and its social role.

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URBAN DESIGN AND SOCIAL WELLBEING: INVESTIGATION OF DOHA'S RESIDENTIAL NEIGHBOURHOODS

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INTRODUCTION

Researchers from different disciplines have been looking into how people interact with their physical surroundings and how the physical surrounding impact people directly by influencing their physical health and quality of life[1] or indirectly by influencing hedonic and eudemonic wellbeing [2]. This has become even more important as lifestyle-related behaviour has often resulted in higher levels of illnesses and a decrease in the general wellbeing of people [3]. Wellbeing has many different dimensions and meaning and is often measured using various methods and indicators depending on the disciplines[4]. Previous research found that neighbourhoods quality can influence health, lifestyle, social and behavioural problems such as obesity, smoking, and raise in crimes [5]. Yet, much of the research on the effect of the residential built environment characteristics on inhabitants' wellbeing has been Eurocentric [6]. There is very little or no research on this relationship between the built environment and wellbeing from other parts of the world, especially from the Middle East. Culture, traditions and the family circumstances of the Middle East are different. This research investigates the impact of the neighbourhood layout design on inhabitants' wellbeing in Doha the capital of Qatar. The aim, therefore, is to understand how the physical characteristics of the neighbourhood's built environment can influence the social wellbeing of its residents.

DEFINING NEIGHBOURHOOD AND WELLBEING

The concept of neighbourhood is dynamic, meaning it is continuously disassembled and assembled according to the field and the focus of the study [7]. The neighbourhood's spatial dimensions should be clarified as conclusions defer, depending on the size of the studied neighbourhood [8]. It is unlikely to define neighbourhood physically without considering the social aspect [9]. Boundaries of the neighbourhood can be defined in two different ways: socially and physically. A well-known physical definition is an egocentric neighbourhood where it uses the location of the person to draw a buffer or limits around this person. The buffer can be defined by a fixed circular distance or take the street distance [10]. Studies that use the administrative boundaries are generally criticised as heterogeneity become a limitation for the research [11]. In contrast, the social definition of the neighbourhood boundary can be identified through sense of community [12]. Further customisation shall include individual characteristics and personal experience as it influences how people define their neighbourhood boundaries [13]. Some scholars believe that context-based neighbourhood definition is ideal, which concern a particular

investigation with unique study location and population to control the variation in architecture and individuals [14].

Wellbeing is a multidisciplinary subject, and it was developed throughout history in different phases[15]. A large volume of research refers to the World Health Organization (WHO) definition of health and wellbeing which state: "Health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity." Hartig and Lawrence agreed that health has several facets, involving personal characteristics, behavioural aspects, and socio-physical environment features [16]. Sociologists defined social wellbeing as a combination of five dimensions that includes: coherence, integration, actualisation, contribution, and acceptance. Residents describe their wellbeing as the availability of an attractive setting, social offering, and different cultures acceptance [17]. Neighbourhood design can contribute to several social aspects [18], which are discussed in the next section.

SOCIAL IMPACT OF NEIGHBOURHOOD LAYOUT DESIGN

The social research of wellbeing focuses mainly on how people interact and network within the built environment. Intervening factors such as the socio-economic characteristics of neighbourhood and participants were usually considered when studying social wellbeing in the neighbourhood physical context [19]. Also, culture and tradition impact how inhabitants from different cultures respond to physical settings[20]. Some studies suggested that built environment characteristics such as the spatial arrangement, function and physical distance, multi-user and multi-purpose spaces, and density of houses per hectare can increase the interactions between neighbours [21]. Williams [22] adds communal space location and visibility, car-free community and neighbourhood clustering to the design principles. Integrating different public gathering spaces and communal spaces into the street fabric which get people together at different times, and purposes which consequently result in social interaction and raise of sense of safety [23].

The change in urban layout dimensions has been noticed worldwide around the first half of the 20th century [24]. It is argued that modern building regulations and neighbourhoods design have marginalised the social dimension of the neighbourhood [25]. For example, inhabitants of the new neighbourhoods reported that the increase in distance between houses significantly reduced the frequency of the visits [26]. While the increase in street width negatively affected social interactions and communication between neighbours[27]. It has been found that the size and dimension of the new neighbourhoods disturbed the day to day social contact between neighbours [28]. A comparison between various layouts concluded that neither designs have a consistent influence on the social behaviour of residents[29]. Dwelling location within the neighbourhood found to impact inhabitants' social network size and properties. It is claimed that inhabitants who live in a middle of houses row have are more socially active that who live on the edge [30].

It has been reported that living near to extended family members or with an ethnic group helped in reducing stress, encouraged social interactions, reduced isolation and loneliness[31]. Although proximity was not clarified, people living in social proximity to an extended family reported receiving emotional support, material support, household maintenance, and child welfare [32]. There is no doubt that physical proximity varies upon the layout design and the building density of the neighbourhood, which consequently impacts social network formation between inhabitants [33].

METHODOLOGY

The research uses a case study method, comparing six neighbourhoods with a variety of layouts for comparison. Socio-economic variables were considered when selecting the cases.

The nature of the variables and indicators discussed earlier have led to tool development. The fieldwork intended to collect primary data using multiple methods: questionnaire survey, interviews, behavioural observation, and built environment mapping (Table 1). Qualitative and quantitative methods facilitated a comprehensive understanding of distinct perspectives of the study.

Method	what	Why
Questionnaire	Collect socio-economic info, social patterns, and neighbourhood perception.	Identify residents' overall satisfaction and patterns.
Interviews	Unveil the hidden social norms of neighbourhoods and whether the built environment has an influence.	Understand the social norms practised in the neighbourhoods. Map social network within the neighbourhood.
Observation	Assess the built environment quality and map social behaviour.	Associate behaviours to spatial conditions.
Spatial modelling	Analyse the neighbourhood layout design digitally.	Link the neighbourhood design to other data sets such as observed behaviours and sociograms of the interviewees.

Table 1 research methods, tools and purpose

FINDINGS

The study found a correlation between the neighbourhood layout and three aspects of social wellbeing. The following subsections discuss the impact of layout design to social networking and connections, sense of safety, and privacy.

Social networking and connections

The statistical analysis suggests that there is no significant correlation between neighbourhood layout to variables of social interaction. However, proximity seems to positively influence the size of social network, especially considering the visual connectivity measured by visual step depth. Physical and visual proximity has a significant relationship with the layout of the neighbourhood. Figure 10 illustrates the average number of contacts with relation to the visual step depth of the neighbourhood layout design. The figure demonstrates that the average number of contacts decreases with the increase in the number of visual steps in semi-gridded layouts. In comparison, the average number of contacts increases with the increase of the number of visual step depth in neighbourhoods with cul-de-sac and loop layout.

Table 2 shows that on average the lowest number of visual depths between the participant and their social contact is 1.33 in neighbourhoods with loop layout. Whereas in the case of neighbourhoods with cul-de-sac layout it is 2.86. The data suggest high cars usage prevalent in neighbourhoods with cul-de-sac layout do negatively affect social network and interactions. The behavioural observation maps illustrated a noticeable difference in pedestrian movement and activities across different layouts (Figure 11). The analysis also found a significant statistical correlation between walking and social interaction, whereas the increase of the number of car ownership has a negative correlation to many indicators of social interaction (Spearman correlation coefficient - 0.230, p-value 0.000).

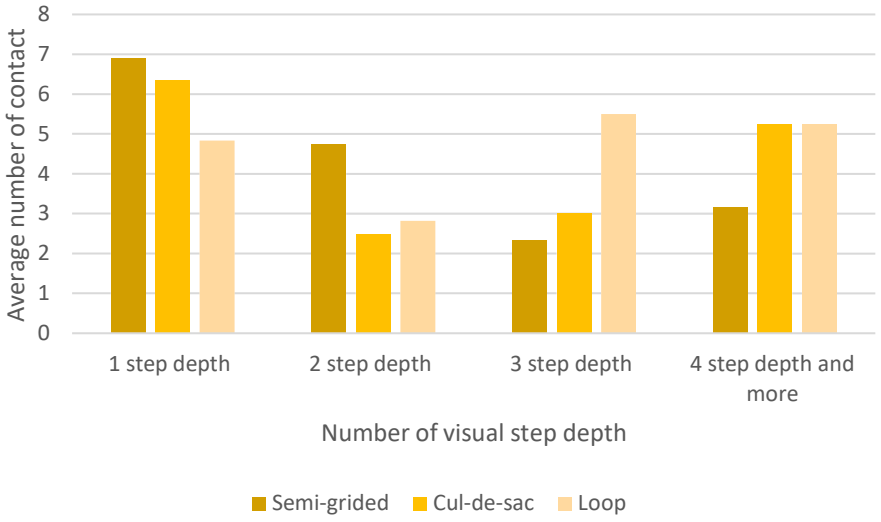
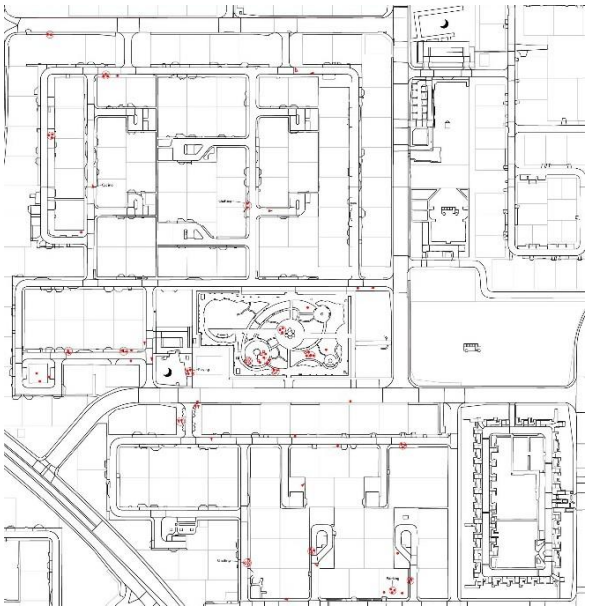


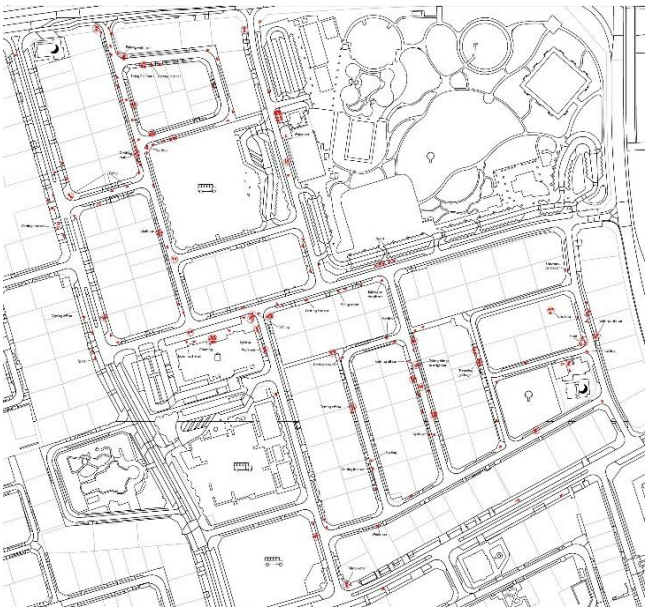
Figure 10 Average number of contact and number of visual step depth by layout design

Case study	Layout	Case study area (hectare)	Average visual step depth	Average visual step depth among neighbourhood design	Average social network distance (m)	Average social network distance among neighbourhood design (m)
Thumama	semi- gridded	42.3	1.9	2.1	40.8	39.4
Dahl Alhamam	semi- gridded	18.5	2.3		38.1	
Onaiza	cul-de-sacs	31.0	2.8	2.6	45.0	42.8
Hazem Almarkhiya	cul-de-sacs loops	30.3	2.4		40.5	
Duhail	loops	33.4	1.3	1.7	15.7	27.3
Khulaifat	Loops	13.8	2.1		39.0	

Table 2 Influence of the neighbourhood layout visual qualities and social network



Cul-de-sac layout weekday observation



Semi-gridded layout weekday observation

Figure 11 comparison of pedestrian movement and activities between two different layouts

Sense of safety

The statistical analysis shows a significant correlation between sense of safety and the number of neighbours that the inhabitants know. Furthermore, not only the number of contacts but also the quality of the relationships also has a positive impact on the sense of safety.

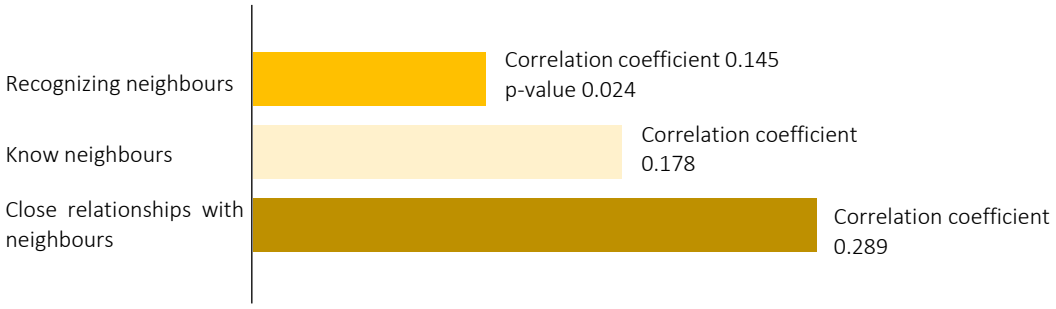


Figure 12 The relationship between sense of safety and social network and connection with neighbors

The study investigated both children and adult's safety. As for children safety, parents were asked if they allow their children to play or mobile within the immediate neighbourhood independently. Below is an example of participants reply to children safety:

"*My grandchild plays in the outdoor space only, he is not allowed to play beyond the fence of the dwelling. I am afraid of crazy people who drive very fast. And I want them to place a speed bump,, to reduce the cars speed*." (053)

Nearly all the interviewees raised their worries about car accidents. Features like wide two-lane streets in addition to parking lanes on both sides result in a wide street that is not safe to cross by a child. Furthermore, the high number of parked cars on both sides and sometimes over the sidewalks, influence the drivers' behaviour and visual field. Therefore, many inhabitants request speed bumps, aiming to control cars speed.

Some of the inhabitants were concerned about crimes such as children sexual harassment or kidnapping. Their fears developed from previous incidents within their neighbourhood. Indeed, the participants' limited children activities to dwelling boundaries. Interview data however found that cul-de-sac neighbourhoods inhabitants had a higher concern and reported more previous incidents of crime. The layout visibility analysis of the neighbourhood was tested using space syntax tool. The lowest visual integration value found in cul-de-sac neighbourhoods, which explains inhabitants' low sense of safety. In contrast, the most visually integrated neighbourhoods found to have a semi-gridded layout.

As for adults' sense of safety, sense of safety was associated with pedestrian movement. A correlation test was conducted to investigate the connectivity of the neighbourhood to the broader context -city-, then the results were compared to the behavioural observation and count of the pedestrian. The lowest average axial integration value (0.429) found in a cul-de-sac layout and the average pedestrian movement observed during the weekend was (23) per hour. On the other hand, the highest average integration value was (0.646) in semi-gridded layout, and the average pedestrian flow during the weekend was (109) per hour.

The axial analysis of the case studies shows that the boundary streets, in general, have higher integration value than the internal streets. When comparing the neighbourhood's layout, isolated streets can be found in loop and cul-de-sac neighbourhoods. While streets relatively had higher integration value in semi-gridded layouts neighbourhoods. The neighbourhood integration found to influence pedestrian movement more obviously in semi-gridded layouts Figure 13, while the association was weaker in loop and cul-de-sac layouts Figure 14. The observation maps show more pedestrian movement in the highly integrated streets, while less movement is observed in the dead ends of the layouts Figure 11.

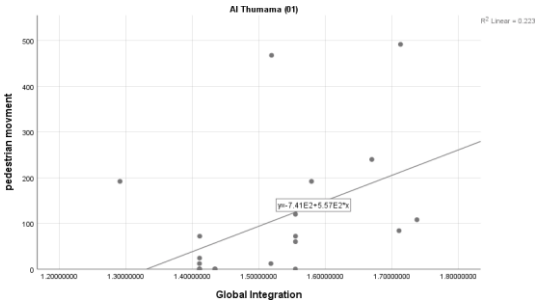


Figure 13 Al Thumama - Semi-gridded

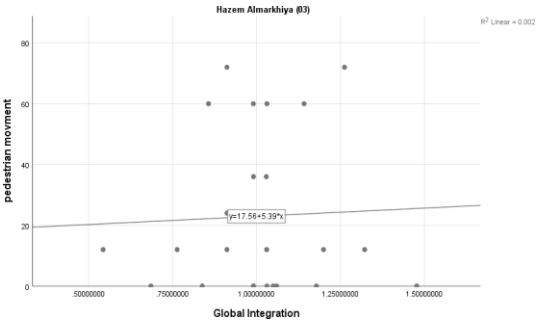


Figure 14 Hazem Almarkhiya - Cul-de-sac

Table 3 scattergram of integration to pedestrian movement sorted by case study– weekend

Interestingly, a sense of safety can be observed in the neighbourhoods. Inhabitants with a high sense of safety found to keep their dwellings gates open all the time. Others who have a low sense of safety found to closed dwelling gates and use a CCTV system. Below is a quote from adults' safety discussion:
"*I do not have any concern of safety. Dwelling gates are opened at all times, if you pass by our house at 4 o'clock in the morning you will find it open*." (024)

Privacy

By carefully examining the data, it was found that privacy satisfaction correlates with dwellings' private outdoor space and dwelling's gate orientation. The physical environment mapping showed that dwellings had two to four gates; every gate has different users. Frequently reported problems were orienting male guest or servant entrance to neighbour's family entrance, in addition to overlooking neighbour's privet outdoor space. The neighbourhood mapping reviled that a high number of dwellings extended their dwelling fences in cul-de-ac layout neighbourhoods Figure 15. The quotation below shows the negative social impact that started from a physical design element.
"*I would like to kick out a neighbour, he opened his driver room door toward our door. They don't respect neighbour rights*" (034)

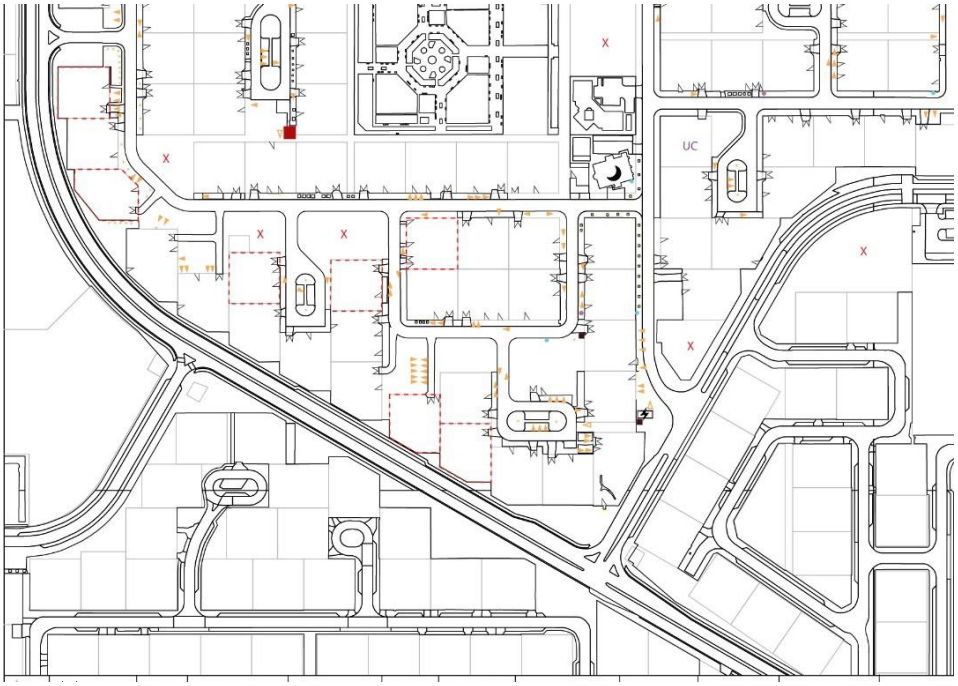


Figure 15 Example of cul-de-sac neighbourhood physical mapping

CONCLUSION

Empirical evidence in this research suggests that the layout of the neighbourhood impact many aspects of social wellbeing of inhabitants such as networking and connections with neighbours, sense of safety within the neighbourhood, and privacy of the inhabitants. These aspects found to improve further inhabitants' social support and their stability in the neighbourhood.

The research succeeded in understanding the culture and norms practised within the neighbourhood, which in turn were affected by the built environment design. Considering this knowledge, a set of recommendations can be suggested concerning the studied context. In general, the layout design should give priority for the pedestrian rather than vehicles which can be achieved through layout design. Layout physical and visual accessibility, street section design, and dwellings orientation and exposure are features that impact social behaviour within the neighbourhood. The layout of the neighbourhood should encourage visual connectivity with neighbours and avoid layouts that result in deep streets. Well visually connected streets found to be more active and have a higher sense of safety. Parallel to that, layouts should maintain the privacy of the dwelling by regulating the orientation of the dwelling and reduce the possibility of privet space exposure. Moreover, neighbourhood connectivity to the city fabric allows the flow of strangers, which maintains the eye on the street. A well-connected layout found to be described by inhabitants as safe with fewer concerns of crime. As for the street section, it is recommended to reduce the street width, which would influence cars speed. Narrowing down the streets reduces worries on children mobility. Furthermore, planting the streets is essential in a hot climate and shall encourage inhabitants to walk as walking would raise the chance of casual interaction with neighbours.

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THE NEW STRATEGY FOR CHINA'S URBAN VILLAGES: PERFECT SOLUTION OR A TEMPORARY FIX?

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INTRODUCTION

Across the globe, urban villages are common yet heterogeneous urban quarters within large cities and they are a typical phenomenon in many Chinese megacities. Their importance to cities, particularly in terms of accommodating a cheap labour force is often paramount to their respective city's economic success, however, urban villages are, on one hand, often ignored by local government, or if not, proposed for redevelopment.

Shenzhen, a city that has grown more rapidly than any other in the world, was established as a Special Economic Zone in south China as part of the nation's 'reform and opening-up' in 1979, is an excellent example of the importance of urban villages. Originally a series of small fishing villages with a total population of around 30,000, many of these have evolved into urban villages in the current mega-city with an estimated population of around 20 million people.

The problems of urban villages have long plagued the Shenzhen government and their recent policy of 'comprehensive improvement' is the latest attempt to deal with issue of urban villages in the modern metropolis. However, the influence of this new strategy is not only changing some the physical living environment inside the urban village, but also strengthening the influence of neoliberalism on urban development. This in turn is accelerating the gentrification of China's developed cities and reflecting the new wave of gentrification in western countries.

This paper will critically evaluate Shenzhen's previous urban village strategy of 'demolition and reconstruction' (D+R) and analyses existing urban phenomena under the context of the new strategy of 'comprehensive improvement' (CIP). It will conclude by considering the influence of the new strategy and the impact of a new wave of gentrification on Chinese cities.

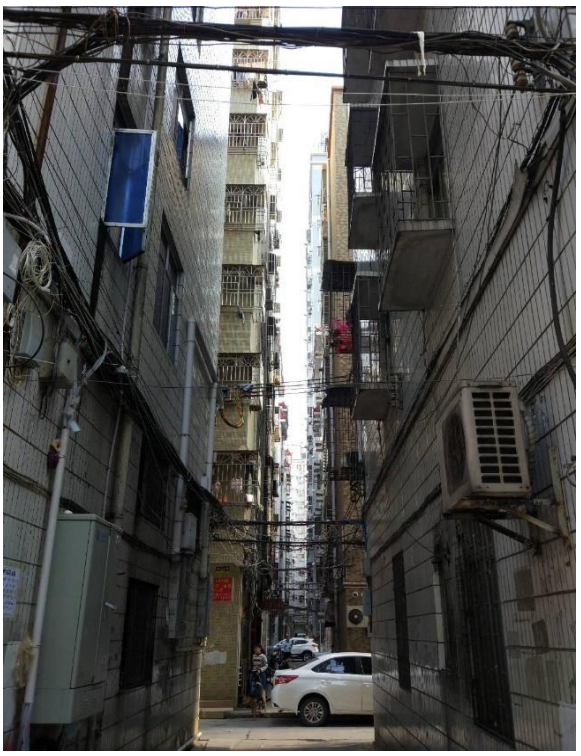

Figure 16: Typical environment of an urban village in Shenzhen (by author)

Two waves of Gentrification in China

With the influence of neoliberalism in China, the first wave of gentrification emerges with the first-time urban renewal projects in the new China. Chinese central and inner-city areas had become dilapidated after years of constrained "non-productive investment" in the built environment under state socialism[1]. Urban renewal projects therefore began under the pressures of poor living conditions and the government's determination for economic reform. Due to China's economic development and the policy dividends brought by the reform and opening-up policy, China's real estate industry has developed rapidly since the 1990s, which is generally regarded by Chinese scholars as the first gentrification process in China[2].

The second wave became obvious around 2005, featuring an ambitious urban upgrading scheme with the aim of building world-class cities. If the first wave was a modest experiment for marketing operations, the second one was for local governments to increase their financial revenue and to rebuild the core concept of a neoliberalism strategy. Along with the renewal of the city, gentrification and its associated impacts on residents was occurring. For example, Foshan city first started the reconstruction of '三旧' 'three old types' of land (old villages, old urban areas and old factories)) in 2008 followed by the reconstruction of 'three old types' in Guangzhou in 2009 to serve the Asian Games. Beijing also began dealing with nearly 50 urban villages in its downtown in 2010, and Shanghai's land policy reform encouraged industrial development to focus on separate industrial parks rather than in its urban areas[3]. All of these projects indicated the second wave of Chinese gentrification.

The renewal project of urban villages in Shenzhen can roughly divided into two stages, the first is the large-scale demolition and reconstruction that began in 2004, and the second is the comprehensive improvement that began in 2018. The 'demolish and rebuild' (D+R) strategy was put forward under the background of both a lack of constructible land and urban village issues (poor living conditions, high crime rates, etc.)[4,5]. It aimed to unify Shenzhen's urban context and completely eliminate the

countryside. However, such a utopian fantasy was not realised, on the contrary it caused many new problems. Consequently, the Shenzhen government issued a new urban village policy in 2018 which introduced the new strategy for the urban villages called 'comprehensive improvement' (CIP), to meet the housing demands of low-income groups in order to maintain the sustainable development of the city.

DIFFERENCE BETWEEN 'DEMOLISH AND REBUILD(D+R)' AND 'COMPREHENSIVE IMPROVEMENT (CIP)'

The strategy of D+R

The huge conflict between Shenzhen's ambition and the then situation of its urban villages became a top issue for Shenzhen's government to deal with and as a result the government held a negative attitude towards urban villages at that time and called them 'the urban tumour'[6,7]. In 2004, the government began to issue a series of policies to support the promotion of urban village reconstruction projects. The municipal government issued the 'interim provisions on the reconstruction of urban villages (old villages) in Shenzhen,' which clarified the conditions, plans, objectives, implementation steps, standards of demolition compensation for the reconstruction of urban villages. These policies were carried out rapidly, with more and more urban villages and old industry zones being reformed into to high-end residential areas, commercial, or office buildings. Because of the number of urban villages that were demolished and rebuilt during this period, the construction land in Shenzhen was supplemented and the economy continued to develop rapidly. Real estate, as the main pillar of Shenzhen's economy, drove other industries to maintain a good growth rate and the government was proud of many successful examples of urban village renewal, such as the Caiwuwei north village project in 2006 which is now the upmarket KK Mall[8].

Although the urban village renewal projects based on the D+R policy brought considerable fiscal revenue and large areas of construction land to the local government, it also brought huge problems for the migrant workers who had a weak voice in society. Considerable literature [8, 9, 8] illustrates that the tenements (most of them inhabited by immigrants) have been displaced by the renewal projects, and some newspapers have illustrated that the biggest victims of the urban renewal process were the tenement buildings. Residents were forced to move to other areas, some even had to leave the city, which been argued by majority scholars that it will aggravate the phenomenon of the displacement of migrant workers and exacerbate gentrification issues. This actual gentrification phenomenon raised the attention of scholars and media which has aroused wide discussion in the society [9]. In addition, due to the increased cost on compensation for demolishment, and the actual need for cheap labour, the municipal government had to find a new strategy to deal with the renewal projects in urban villages.

The strategy of CIP

As China's central government adjusted its social direction, the Sixth Plenary Session of 16th CPC Central Committee adopted the'Decision on several major Issues concerning the construction of a harmonious socialist society' in October 2006[10]. Subsequently, the crude economic development model of exchanging nature for economic growth was not advocated, and the phenomenon of large scale 'demolition and construction' began to decrease. The main contradiction in Shenzhen at that time was not only the shortage of development contractual land but also how to guarantee the availability of a sustainable low-cost labour force so as to maintain the rapid economic development of the city. This goes to against the previous strategy for urban villages of 'demolish and rebuild.' Therefore, the new policy follows the trend and in March 2019, Shenzhen Municipal Bureau of Planning and Natural Resources officially released the Overall Planning for Comprehensive Improvement of Urban Villages

(old villages) in Shenzhen 2019-2025) (hereinafter referred to as the Overall Plan of Urban Villages)[11]. The Shenzhen government defined CIP as:

Comprehensive Improvement projects mainly include improvement of fire protection facilities, infrastructure and public service facilities, street facade, environmental renovation and energy-saving renovation of existing buildings, but do not change the main structure and use function of the building.[12]

In addition to slowing down the process of gentrification, the Shenzhen government also aims to convert the special quarters of the urban villages into a reserve of affordable housing for the immigrant workers who have made a significant contribution to the rapid development of the city. The currently completed comprehensive improvement projects include the youth apartment in Jingle Village led by the developer Vanke (see figure 2). Meanwhile, in order to prevent the eviction of tenants due to increasing rents after comprehensive improvement, the Overall Plan of Urban Villages also put forward that relevant government departments should strengthen the lease management in the urban villages. The increase of rent is however inevitable as it is related to the cost of unified rent and operational costs of developers.

Figure 17: Youth apartment in Jingle Village (by author)

RECENT IMPLEMENTATION OF THE CIP APPROACH

The new policy mainly solves two problems, one is the poor physical conditions of the urban villages, and the other is the negative impact of the previous D+R strategy. In terms of the problems of the urban villages themselves, the Overall Plan of Urban Villages specified in article 6 that one of its key aims was to "eliminate safety hazards in urban villages and improve the living environment and supporting services." This was also articulated in more detail in articles 7, 17 and 21. Indeed, in article 21, it states that:

The implementation plan of updating units should be scientifically formulated to eliminate the hidden dangers of fire fighting in urban villages, break through the traffic microcirculation, improve the public supporting facilities, increase the public open space, and improve the environmental quality.

Although the phenomenon and impact of the D+R policy will be reduced, the urban villages will not remain unchanged under the new CIP strategy due to its goal of transforming the urban villages into new urban space to fit the modern city. In terms of the rental market, article 19 states that the market will be strengthened, and the government will severely crack down on violations of laws and regulations in the rental market of the urban villages. The D+R policy raised a spectrum of problems for the working-class immigrants, such as the displacement of tenants, gentrification, longer commutes to work [13]. As a result, a large number of scholars have argued that the resultant changes to the urban villages have impacted negatively on Shenzhen's social and economic development [14]. As a result, the new CIP has set out to limit the total amount of D+R whilst areas with buildings which are in relatively good condition and the urban villages with high development intensity are now attributed to the CIP category. Also, the municipal government is attempting to increase the supply of indemnificatory housing by promoting large-scale 'collective renting' and renovation. In article 19 and 22 of the Overall Plan of Urban Villages it mentions that the government plans to guide the leasing business of existing houses in the urban villages and to integrate them into the overall management of government-subsidized housing if they meet certain requirements. Article 19 also mentions that the original tenants have the priority in terms of their rental needs in order to reduce the eviction of tenants through the government's controlled updating. Lastly, the government has attempted to link CIP to the management of the urban villages.

The process of implementing comprehensive improvement: the role of the government and the developer

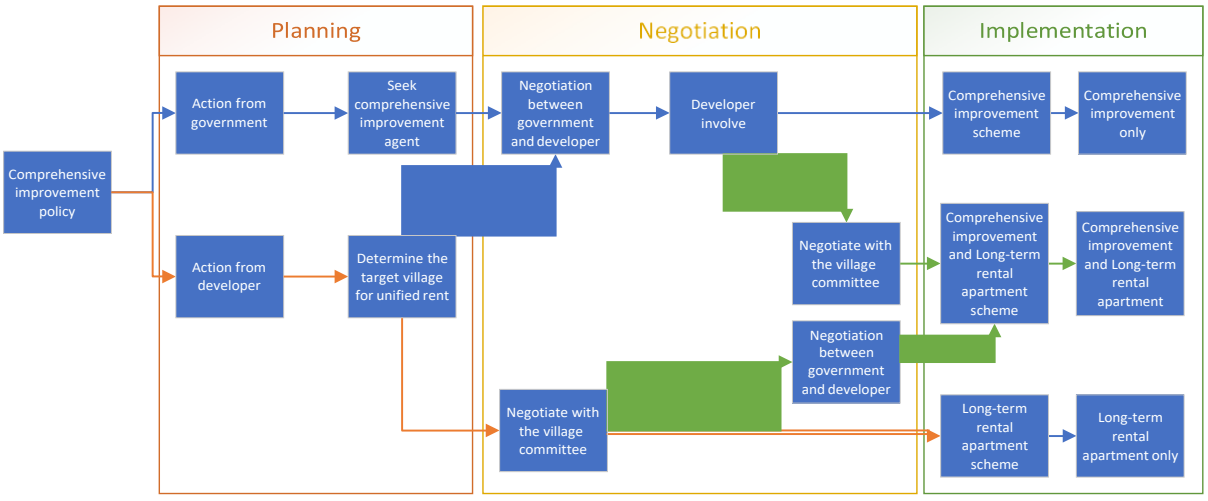

Figure 18: The process of implementing comprehensive improvement (by author)

The government, developers, and the village committees are the main players in the whole comprehensive improvement process. This tripartite relationship involves the government as the investor, the developers as agents of construction, and the village committees as the owners. The whole process of CIP can be divided into four stages: planning; negotiation; implementation; and operation.

Planning

There are two ways that the developers can be involved in the process of comprehensive improvement: 'Zero Agent Construction' (an agent construction project with zero agent-construction cost); and 'Open Bidding'. In the 'zero agent construction' model, where the developer actively willing to take on the

task of construction as part of comprehensive improvement, the government is able to choose the developer directly from the government's supply list of developers. In this way, the main motivation for developers is to benefit from the long-term rental apartment market after the works are complete. In this process, the developer cooperates with the government and undertakes the improvement works as an investment with the return coming through the future rental returns from managing the property.
The second model of 'open bidding' is higher risk for the developers with potentially much lower returns, because the process of CIP may not actually be profitable. Due to the stringent requirements and controls that the government places on the developer as seen in Article 22 of the document:
Considering the current situation of the urban villages construction situation and the economic interests of the factors, by the way of allowing the local construction, reduce the update unit plan legal land proportion of barriers to entry, set up the special support fund, etc. request the district government combined the original rural collective economic organizations or encouraging large enterprises, which have socially responsible and enough strength, not for the purpose of pursuing profit, actively participate in the comprehensive improvement of urban villages. And participate in the unified management of the property after comprehensive improvement to ensure the sustainable development of the village in the city.

Negotiation

The negotiation stage is the most complex, involving many different interests. The developers in addition to having to be "invited" to participate in the comprehensive improvement projects, have to consider whether they want to expand into the rental apartment for profit industry. According to the interviews with developers, because the government is unable to undertake the construction tasks independently, the developers basically take all responsibility including negotiation with village committees regarding specific construction and other matters. Aside from favourable policies, the developers do not receive substantial support.
In addition, interviews with designer sand developers revealed that the district government's demonstrated confusion with regard to the new policy and that there is no uniform standard to the way it is applied in different villages. Significantly, the city has no strict rules as to which department should take the responsible for the implementation of the policy. Furthermore, some government departments are reluctant to provide funding because they think developers will be able to profit by participating in the comprehensive renovation projects, which in some cases makes it difficult to implement the programme.

Implementation

The urban villages themselves are often the main obstacle of the implementation of CIP. Experience from previous initiatives, such as D+R, means that villagers expect large compensation sums. As a result, some villagers collectively make it difficult for the developers at the beginning of the project implementation, for example in Sungang village (see figure 3). Here they believed that once the comprehensive improvement process had started their chances of getting compensation would be gone (from an interview with a developer). In reality, developers have no right to decide if the urban village can be demolished or not.

Figure 19: Protesters in the Sungang Village [15]

The negotiation process is more difficult if the developer needs to turn some buildings in the urban village into long-term rental apartment rather than only undertaking infrastructure improvement. In these cases, they need to negotiate not just with the village committee but with each villager individually. This usually involves the developer having to have a different team to negotiate with different building owners and since each building is in different, size, and condition, the compensation amounts will not be the same, which makes it more difficult for developers to conduct a unified operation.

Operational issues

The leasing objectives of the buildings renovated by developers have often changed, the long-term rental apartment is mainly targeted at young graduates. Neither the negotiation mode nor the commercial operation of the transformation can meet the requirements of giving priority to the original tenants, because the original tenants are never facilitated or desire to participate in the discussion and decision-making.

According to one developer interviewed, it costs 60-70 yuan (approximately 10 US Dollar) per square metre (20-30 yuan per square metre outside the old SZE) when they take over the building and the renovation cost is 2500-3000 (approximately 350-400 US Dollar) yuan per square metre (not including electrical installations). However, following the construction and improvement works, the actual rent they can achieve is only 10% higher than before. Moreover, the rent that they need to pay to the villagers will increase 5% each year. The initial idea to renovate the whole village and to make the whole area property appreciate in value was also thwarted due to the difficulties of the one-to-one negotiation with the villagers. Another developer that was interviewed said that: “the joint-stock companies of villages are also involved in the operation of the property, which makes it impossible to take over the properties in the village completely. High value properties such as shops or stores at the ground floor charge a very high price that we (developers) cannot afford the cost. In general, it is impossible to make a profit by only relying on rent as income.” As a result, based on the field survey and information provided by interviewees, most developers have basically suspended the renovation of the rented apartments in the urban villages, leaving only the comprehensive improvement work in progress.

In addition to the imperfect market and the lack of substantial government support, the main reason is the failure of developers in making decisions. According to interviews with designers and developers, the initial optimism about the outcome led developers to misjudge the market, leading to high budgets being allocated for refurbishment projects. At present, there is no team to follow up the negotiation with the villagers since the middle of 2019, and even some buildings that have completed the negotiation have been returned to the villagers with liquidated damages. Now only unfinished buildings are being

constructed, and the operation of the renovated buildings is still continuing. Although the suspension does not mean that the project has failed, it can be said that there is no better way to make this idea sustainable at present.

CONCLUSION

China is widely considered to be in its second wave of gentrification [2,3,16,17] as a result of local governments' pursuit of urban economic growth and local competition under the stimulus of neoliberalism. Although urban renewal projects in many cities have already achieved significant outcomes such as improving living conditions for large numbers of citizens, the phenomenon of the displacement of lower-income people still exists [2]. The new CIP policy issued by Shenzhen has solved many of the problems caused by its previous D+R approach, however, inspection of the new policy reveals the promulgation of the policy cannot directly solve the problems but requires the cooperation of each of the participants in the process under the development laws of the market economy. Some articles in the CIP policy will be hard to achieve and require the municipal government to develop detailed guidance to guide and regulate the market. For the implementation of the CIP approach, there is no doubt that developers are the main participants and enforcers of change in the urban villages. As such, only by allowing developers to achieve sustainable profit margins during the process of comprehensive improvement will more funds be injected into the renovation process. This will in turn enable developers to continue to promote the sustainable development of the new CIP policy. At the same time, the balance between low-income groups and the real estate industry still requires government intervention to maintain the stable development of Shenzhen's economy and society.

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HISTORY OF SETTLEMENTS AND RESIDENTIAL ARCHITECTURE IN THE UAE AND ITS IMPACT: PRE AND POST DISCOVERY OF OIL

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INTRODUCTION

The Gulf region is facing various challenges that afflict the modern world, such as climate change, the disintegration of the family unit, high rates of divorce, and chronic depression amongst children and teenagers[1]. One approach to addressing these problems in the region is to cultivate a strong understanding of how our contemporary built environment exacerbates these challenges. This paper looks at the possibilities of a modern revival of the traditional building typologies of the region, such as the courtyard house. The aim is not a simple imitation of the aesthetics of the past[2] as typically prevalent, but instead an examination of the reasons behind their previous success and assessing their ability to mitigate current challenges.

This paper will investigate the history of early settlements in the UAE, leading up to its rapid growth and evolution over a span of four decades from the discovery of oil. The paper will then focus on a single building typology: the courtyard. These homes traditionally were common in the Middle East, due to the fact that these highly introverted homes not only brought physical comfort and shelter from the forces of nature, but also helped cultivate a strong sense of family bond that is seldom considered in recent times[3]. The paper will examine the reasons for the decline in popularity of the courtyard houses after the discovery of oil in the UAE, and further analyze a few successful examples of contemporary courtyard buildings as a possible modern revival of the traditional building typologies. The aim not being a simple imitation of the aesthetics of the past[4] as typically prevalent, but rather a much deeper understanding of the nature of these traditional buildings. Why were they so successful and how can they help address the challenges of the modern world?

SETTLMENTS AND THE EVOLUTION OF RESIDENTIAL DESIGN IN THE UAE

Pre-Discovery of Oil

The UAE is a confederation of seven Emirates[5]. It is also a peninsular country, with a coastline on the south-western side of the Arabian Gulf, as well as on the Northwestern side of the Gulf of Oman. Geographically, the country covers an area of 83,600 square kilometers[6], with three distinct geographical zones: mountains, the coast, and the desert.

The economy of the UAE and the Gulf region over that last two centuries has been primarily a byproduct of its key geographical location, priming it as a transit point between the Asian subcontinent and the West. Prior to the Oil era, the majority of the region's exports were dates and pearls. Pearling being the backbone of the industry provided seasonal employment to the locals, which accounted for the bulk of the gross domestic product (GDP) of the Sheikdoms, both through taxation and their direct involvement in the pearling trade[7]. Some of the prominent historical ports were Julfar (now known as Ras al Khaimah), Dibba, Dalma and Dubai.

As Fahad explains in his 2016 paper, towards the end of 19th century, demand from the European and American nouveau riche for pearls reached an unprecedented high, and the value of pearl exports increased by 600% between 1873 and 1906[8]. Unfortunately, this exponential growth was short-lived and, as a result of the great depression in the 1930s, as well as the growth of the Japanese cultured pearling industry, the industry in the Gulf was hit hard, causing its many employed local inhabitants to become heavily indebted to the boat owners.

Typical traditional settlements before the discovery of oil was characterized by clusters of buildings that surrounded a Friday mosque, the ruler's house and a central courtyard. The main marketplace (or the *souq)* was typically located along one or two of these major roads leading to the town center or core. Small alleys branched from the main road giving access to private homes. The width of roads and alleyways was kept to a minimum, in order to maximize land use and to ensure that building structures provided a cool shade at all times of the day.

To keep public and private space separate, of paramount importance in all traditional settlements, most residential areas *(freej)* were tightly clustered together based on tribal affiliation. Courtyard homes with flat roofs were the most common typology. The flat roofs with their high parapet walls were commonly used in the hot summer months to sleep on so, to ensure privacy, the height of the homes was standardized to two floors. The construction method was determined by the settlement's location and available material. Poorer families lived on the outskirts of the settlements in huts made from *barasti*, composed of date palm fronds and leaves. These huts were especially effective during the summer months due to the natural ventilation that was created by its method of construction and material[9].

Post the Discovery of Oil

After a 30-year search, oil was discovered in the UAE in 1958, and by 1960, it had become an oil producing nation, bringing some well-needed relief amidst the declining pearling industry. The indebted employees of the seasonal pearling industry started working either in oilfields or the newly-developed government sectors, where they received regular salaries to help them gradually become debt-free.[10] In order to reduce the burden on its citizens even further and help the nomadic Bedouins settle in urban areas, Sheikh Zayed, the ruler of UAE from 1971 to 2004, established the first National Housing Project. Free housing for the Bedouins, as well as lower- and middle-class citizens, was a welcome gesture that provided the locals with property ownership. Sheikh Zayed initially invited several international architects to design the first national *sha'bi* house, eventually settling on a very simple yet highly effective single-story vernacular design of a living room, two bedrooms, a kitchen and a bathroom, placed on two sides of a courtyard[11]. This design not only preserved the privacy of the families but also accommodated the future expansion of the home based on the growth of the family.

As oil exports increased in the 1970s, the UAE started to industrialize. Mega construction projects were established, supported both by the government and private investments, building highways, schools, hospitals and new residential clusters. More skilled and semi-skilled foreign workers started migrating to the UAE as a result, leading to the need to expand traditional settlements, which soon had their distinct boundaries dwarfed by ever-growing development on the outskirts.

The traditional settlements also had limited accessibility for vehicles, so their functions as commercial and retail districts also started to change. Business and high-end retail started moving towards custom-built districts and shopping malls on the outskirts of the traditional settlements. Almost all the original residents started abandoning their courtyard homes for walled two-story, temperature-controlled villas built in the middle of square or rectangular plots on the outskirts of the city [12]. The original courtyard homes were rented out as either storage facilities or accommodation for low income workers and, as a result, the demographics of the original settlements transformed within a few decades. National housing projects also began to follow the same detached single-family formula, losing sight of the traditional, climatic and cultural sensitivities of the original *sha'bi* house.

The Future Based on a Diversified Economy

Witnessing a decline in the price of oil over the past two decades, owing to a global shift from fossil fuels to alternative energy sources, the UAE has been developing strategies for the diversification of its economy. Each Emirate has created its own vision, concentrating on different solutions such as tourism, agriculture and robust manufacturing industries. Dubai's participation in the World Expo 2020 is one such example.

The vision in common for all the Emirates has been to develop a strong knowledge-based economy to help sustain the health and well-being of their future generations [13]. As a result, the vision of global cities is being transformed into reality in both Dubai and Abu Dhabi. As Arjun Appadurai describes, the global cities of the future are being made from multiple 'scapes' [14], with the current and projected future of Emirati cities very much an aggregate of different 'scapes'. To name a few: Masdar City in Abu Dhabi and Internet City in Dubai being techno-scapes; City Walk in Dubai being an ethno-scape, Dubai International Financial Center (DIFC) being a finance-scape; and the Dubai Design District (D3) being the idea-scape. Other cities in the region are also starting to follow this model.

As these future cities are developed, the major challenge at hand is twofold: how can this growth be sustained without impacting the environment, and can it preserve the social and cultural needs of its inhabitance?

COURTYARD HOMES AS A TYPOLOGY OF DESIGN

The Traditional Courtyard House

Courtyard houses are distinct by design, as they have all their main spaces built around a central courtyard either on a single or double level. The walls of the surrounding main spaces or boundary walls shade the courtyard for almost the entire day. The only time the courtyard is not shaded is during the mid-summer days, and for that reason a large tree is usually common in most courtyards (Figure 1).

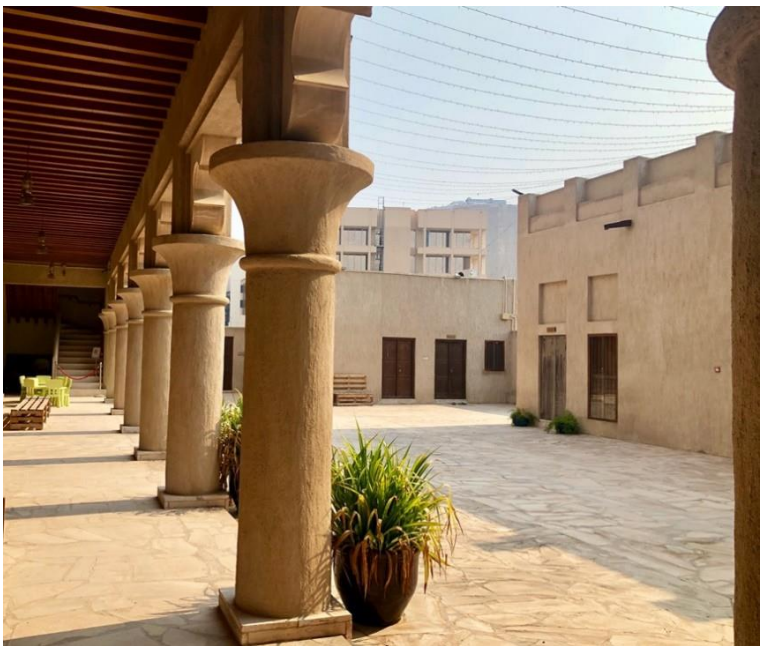

Figure 1. Traditional Courtyard house, Dubai, UAE

All windows open into the courtyard and their sizes vary based on their orientation. South-facing windows are typically smaller and shaded by a covered veranda, whereas the north-facing windows are much larger. Some high-level windows facing the street or wind towers (*barajeel*) are occasionally provided for cross ventilation and to allow the hot air to escape[15].

Courtyard homes have been in the Middle East for centuries, dating back to the pre-Islamic, Sumerian and Pharaonic civilizations [16]. The courtyard houses were developed in order to address both the harsh climatic conditions and to provide families privacy, which to some extent is still a reflection of the regional culture today: even though family privacy is very much ingrained in the traditional Middle Eastern Islamic culture, it is important to note that privacy is a universal value and typical behavior, exhibited in almost all cultures and societies.

In the UAE, the courtyard houses beyond a climatic solution provided a social and communal space. All family members were invited by nature to conduct their activities outdoors: "the main features of the courtyard, which is usually paved, is the central tree, often Indian almond, occasionally a date palm. Plants in pots were also used to add greenery. Other visible features are: the surrounding verandas with their decorative columns and arches; wooden balconies; and detailing such as claustra, doors and windows"[17].

Informal accounts from family members who lived in these courtyard houses articulate a very simple yet comfortable, happy life. The courtyard provided a safe space all family members worked and played in. Adults would conduct their household chores, while kids would play or do their homework under the shade of the central tree. Even though it is very difficult to separate nostalgia from the truth, these centrally located courtyards created functional, private and thermally controlled environments, which helped create family quality time that modern homes struggle to replicate.

Climatically, the traditional larger courtyard homes allowed its occupants to adapt and adjust between the winter and summer months via horizontal and vertical seasonal movements. During the summer months, the family would reside mainly in the south wing of the house because its north-facing windows sheltered it from the direct sunlight while allowing the open windows to create cross-ventilation. In the

winter, the migration would work in reverse. Traditionally, the seasonal movements were quite simple due to the lightness and modesty of the furnishings[18].

With the modernization of the UAE, most residences of the traditional courtyard homes after the 1970's started preferring new temperature-controlled homes instead of their environmentally-sustainable traditional courtyard houses. Only after four decades did the social and environmental impacts of this decision are became apparent. Despite the Green Design Standards and all the governmental efforts being initiated, the amount of energy being wasted as a result of incorrect orientation, disproportionately building opening sizes, and the over specification of the mechanical cooling system is astronomical[19]. By looking at examples of traditional architecture such as the courtyard house we might be able to address the contemporary social, cultural and environmental requirements of our building occupants.

The Revival of the Courtyards in Modern Architecture

The aim of revisiting the contemporary possibilities of the courtyard design is not to proclaim the authority of the past; rather, it is to acknowledge the relevance of the design in the 21st century, when the use of a mechanically temperature-controlled environment and reliance on fossil fuel are under scrutiny. This provides an opportunity to examine two of the six principals of green architecture as presented by Brenda and Robert Vale in relation to the courtyard and its potential benefits in modern architecture[20].

Vale's second principal is based on "*working with the climate*", which allows for a passive architectural design to provide thermal comfort for building residents [21]. Based on its extreme summer temperatures, the UAE has potential for a reintroduction of the courtyard design in line with this principle, but it is worthwhile to examine a few international and national learnings that will help improve its efficiency.

In order for a courtyard to provide shade during the summer and to gain sufficient solar radiation in the winter, the scale of the courtyard is critical. I have therefore looked at a four-story, multifamily residential complex in Dubai called the Greens, which comprises of a set of units looking into a large communal garden that houses swimming pools, basketball courts and children play areas, in contrast to new courtyard multifamily developments in Beijing, China[22]. Even though the Greens is a successful family-oriented residential project and typical units facing the courtyard fetch a much higher rental revenue, unfortunately, due to the large scale of the central courtyard and its direct exposure to the sun, the space is uninhabitable in the summer for three to four months.

Using the Beijing modern courtyard housing as an example, the large public space of the Greens could have been broken down into multiple smaller scale courtyards, and these spaces could have carried the potential for year-round use. Alternatively, large courtyards such as the one in the Dubai Municipality building, or the Louvre in Abu Dhabi, work successfully, both as a transitional and an open public space as with their utilization of partial shading and body of water to provide natural shade and coolness. The partial shading also allows hot air to escape. Another great institutional building is the School of Natural Resources and the Environment at the University of Arizona (Figure 2). This remarkable multi-level building is built around a series of extended balconies looking into a well-designed zero-scape central courtyard, a space comfortable enough for the harsh dry summer months of Arizona.

Figure 2. School of Natural Resources and the Environment at the University of Arizona.

Vales's fourth principal of green architecture is "*Respect for users*", which is a principle that unfortunately tends to be neglected[23]. This principal is applicable in two distinct forms, the first of which is the effect of construction material on the physical health of the user, and the second in the form of social and psychological considerations in the design process. For the sake of this article, I will be concentrating on the latter due to its relevance to UAE culture and the courtyard design.

Traditionally, the courtyard held a strategically central location in the house, acting as a communal space through which family members could interact with each other throughout the day. This helped foster close family bonds, which is unfortunately not apparent between most families in our contemporary society, where most children do not have much time to spend with their parents discussing their life issues and challenges[24]. By reintroducing the courtyard into modern single-family homes, both as a transitional and communal space, we can assist in, once again, re-establishing a sense of family unity. As a result, passive design can help nurture a much happier family and home.

CONCLUSION

By studying the historical evolution of settlements in the UAE before and after the discovery of oil, and by examining the possibility of reviving a single historical design typology – the courtyard house – prevalent in the country and the Middle East, this paper has tried to partially answer the following series of important questions, which Ashraf Salama calls "questions that will not go away" (2014): "What are the sustainable qualities that should be associated with international ideas on entering the host culture especially those pertaining to social practices? What are the socio-cultural and socio-behavioral impacts those ideas have on the locale and how can their negative effects, if they exist, be reduced or hopefully eliminated? What will be the running cost of embracing such international ideas and how will they effect the everyday activities of the average citizen? Can there be a position within socio-global aspiration for traditional ideas that are still relevant to today's culture in this region?"[25].

This authentic regionalist approach to design should not simply look at a set of pure aesthetical elements and symbols, typical of tourist destinations, but rather examine the generating principles of traditionally-created spaces, which helped support communal activities conducive to the health and wellbeing of their occupants (Figure 3). Only through the modern revival of these generating principles are we able to

design spaces that can cultivate a better sense of wellbeing and happiness. The courtyard typology is but one example that can be reintroduced both as a single residential unit, or as a large-scale commercial building.

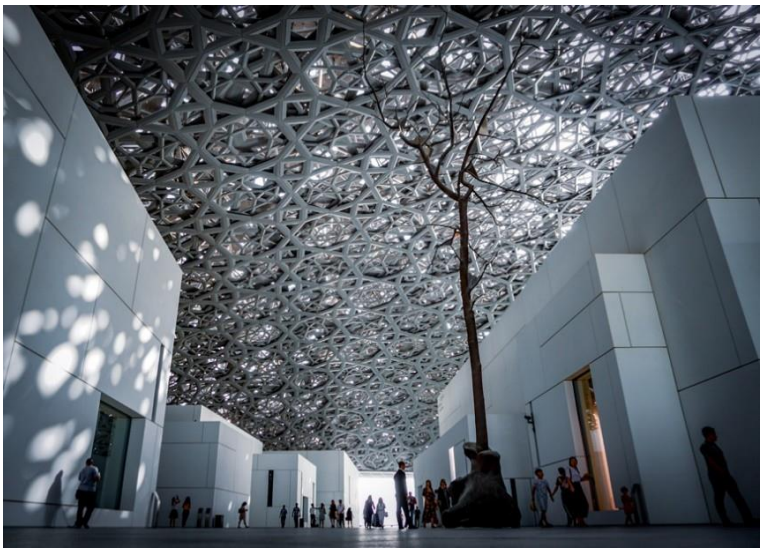

Figure 3. Louvre Abu Dhabi central shaded courtyard.

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EDIBLE CITIES OF POST-ANTHROPOCENE: A BIO-TECH HOUSEHOLD

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INTRODUCTION

The current global Covid -19 pandemic has brought into sharp focus the need for a global re-examination of agro-economics, production, distribution, and consumption of food. We have seen how long and convoluted our food chains are and how susceptible to severe disruption by a global emergency that pays no attention to cultures, economies, or borders. It has also highlighted how consumer behaviour, conditioned by many years of a perceived need for instant availability of a wide range of products with all year round availability, can rapidly descend into chaos which exacerbates the situation eg panic buying of food and hygiene products. In a recent article Cappelli & Cini [1] discuss the disruption to food chain caused by the Covid-19 pandemic and suggest the answer would be to shorten the food chains so that production and consumption are both as local as possible. Such arrangements can be an effective lifeline to communities exposed to food shortages, be they rural or urban. It is also argued that quality of life within communities will improve as the micro economies create employment opportunities and circulate money locally. This paper examines and describes a small-scale energy efficient food production model which addresses the concerns noted above. It also offers some practical steps to address these challenges. The fully developed commercial prototype is described as is the production process, highlighting recent research into the energy efficiency of it. The discussion is framed around four issues of global significance; **Sustainable Food Production**, issues of **Food Security** and the concepts **Circular** and **Foundational Economies** which are discussed below**,** with definitions cited from a number of sources.

Sustainable Food Production

There are many definitions of what constitutes a sustainable food system. However, they all share common threads relating to local issues such as security, efficiency of production, health and wellbeing of consumers. Central to the concept of sustainable food production is that it is built on principles ecological, social, and economic values of a community and region.

Pothukuchi and Kaufufman in their definition place more emphasis on efficiency of production and use of energy and processes that are in tune with local ecological and environmental conditions and the recyclability of waste. They also note that sustainability should take into account the balance between food imports into the community and local capacity. This mirrors the principles of the Foundational Economy discussed below i.e. production within a community should be driven by the needs of a community and not by the pressures of external corporations' view of what the community *wants.*

In the case of the system described in this paper the sustainability elements are the basis of the process. i.e. the growing substrate (wood chip) comes from sustainable sources such as managed woodlands and production requires sustainable low energy and labour input.

Food Security

Food security is a measure of the availability of food and individuals' ability to access it. Affordability is only one factor. The issues of supply and demand have role to play as do local and global geopolitical situations and environmental changes. Food security incorporates a measure of resilience to future disruption or unavailability of critical food supply due to various risk factors including droughts, shipping disruptions, fuel shortages, economic instability, and wars. In an increasingly unstable world (from the global to the local) small scale solutions can help to inform large scale challenges. Producing food as close as possible to where it is consumed builds resilience and reduces the chances of disruption and interruption of supply. It maintains control over the food chain within the community.

In the recent publication Food Bigger than the Plate the editors discuss the disconnect between farming ie the way we use resources and labour to create food, and urban life[2]. In essence, the rural has become the location of food production and the urban it's consumption. The projects covered by the publication's accompanying exhibition speculate on ways to reverse this trend and to integrate food production with urban living, utilizing small areas be they privately owned or communal. The Mushroom Garden Growing system discussed in this paper seems to be ideally suited to achieve this aim.

The Circular Economy

A circular economy is an alternative to a traditional linear economy (make, use, dispose) in which we keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of each service life. The Ellen McArthur Foundation in its publication "Cities and The Circular Economy for food" describes three elements which contributes to the circular economy for food in an urban situation all of which are elements of the Mushroom Garden growing system and products. These are summarized as follows:

'SOURCE FOOD GROWN REGENERATIVELY, AND LOCALLY WHERE APPROPRIATE- the growing substrate for the mushrooms can be sourced locally or at best regionally, and is the waste product of tree surgery for Shiitake mushrooms and waste organic matter eg straw or sawdust for Wood Oyster production, and when used it is returned to the land or garden as mulch or compost.

DESIGN AND MARKET HEALTHIER FOOD PRODUCTS- The Mushrooms grown in the system have a proven provenance for nutrition and taste.

MAKE THE MOST OF FOOD - the system and the produce produces very little waste all of which can be composted.'[3]

The Foundational Economy

The Foundational Economy is a classic "bottom up" model. As opposed to the" top down" approach of many government institutions on local, regional, and national levels, it is a community led economic model based on community's real needs and rights. It does not blindly follow the perceived needs as laid out by dogmatic policies or the market. Bentham et al take a broader view on the matter in the Centre for Research on Social and Cultural Change publication "Manifesto for the Foundational Economy". They identify three major players that influence the Foundational Economy namely the state, the privatised utilities and supermarkets [4] This demonstrates how food production, distribution and consumption is such an important component of people's lives which can be addressed through the Foundational Economy. The Mushroom Garden's growing system is developed with the immediate

needs of the community the primary consideration, and, as the Mushroom Garden system is a Wales based project, it is a perfect fit for this important message from Welsh Government.

THE PROTOTYPE FOR GROWING HIGH VOLUMES OF QUALITY NUTRITIOUS FOOD

The paper discusses a prototype of a system for growing mushrooms called the Mushroom Garden System based on converted shipping containers. In essence, the shipping containers are insulated boxes where the environment can be manipulated to encourage growth of Shiitake and Wood Oyster mushrooms. The System is based on two units, one for sterilizing, inoculating, and incubating the growing substrate, which is wood chip and straw. The second unit is the growing or fruiting unit where the mushrooms emerge from the substrate and grow. For the precise steps and conditions for successful growing see section The Process.

Fungi are becoming increasingly important in the western world and developing countries as a valuable food source. A recent report from Fortune Business Insight [5] show an estimated increase of global mushroom consumption from 12.74 million tons in 2018 to 20.18 million tons in 2026. with an increasing canon of evidence of health improvement properties especially in immune system boosting properties and antioxidant properties.

The analysis below shows how both Shiitake and Wood Oyster mushrooms are rich in essential nutrients, which are enhanced and concentrated when the mushrooms are dried. The Vitamin D content is highlighted as the Mushroom Garden System generates three times more of the vitamin in Shiitake mushrooms than current commercial growers, as demonstrated by the data by USDA National Nutrient Data base.[6] below (see Table 4, Table 5 ,Table 3 and Table 7). The nutritional values as a percentage of the weight increases dramatically when the mushrooms are dried (weight loss 90% when dried so concentration increases). Particular attention should be placed on the protein values of the dried mushrooms which are higher than some processed meats eg bacon.

Nutrients	Amount
Basic Components	**100g Contains**
Protein	2.10g
Carbohydrates	5.20g
Water	86.69g
Ash	0.81g
Calories	
Total Calories	36.46Kj
Carbohydrates	
Dietary Fiber	1.00g
Sugar	1.00g
Other Carbs	3.10g
Vitamins	
Vitamin C	2.50mg
Minerals	
Iron	2.60mg
Sodium	21.98mg

Table 4: Fresh Shiitake Mushrooms source USDA National Nutrient Data base [7].

Typical Values	100g Contains
Energy	1492kJ/ 353kcal
Fat	1.0g
of which Saturates	0.2g
Carbohydrate	63.9g
of which Sugars	0.g
Fibre	11.5g
Protein	16.3g
Salt	0.03g

Table 5: Dried Shiitake Mushrooms source [8]

Basic Components	100g Contains
Protein	3.31 g
Carbohydrates	6.09g
Water	82.0 g
Calories	
Total Calories	217 KJ
Carbohydrates	
Dietary Fiber	2.30 g
Sugar	1.08 g
Other Carbs	2.71 g
Vitamins	
Vitamin A	30.00 mg
Minerals	
Iron	1.33 mg
Sodium	18.00 mg

Table 6: Fresh Oyster Mushroom source USDA National Nutrient Data base [9]

Typical Values	100g Contains
Energy	660kJ/ 160kcal
Fat	2.0g
of which Saturates	0.2g
Carbohydrate	0g
of which Sugars	0.g
Fibre	24g
Protein	23g
Salt	0.03g

Table 7 Dried Oyster Mushrooms source [10]

Most cultures would dry mushrooms before use not only to concentrate the nutrients but also to increase shelf life from 7 days to 12 months. The Mushroom Garden has had a confidential report commissioned through Coleg Menai Food Technology Centre with an UKAS certified laboratory in –2018 that shows the Vitamin D content of Fresh Shiitake mushrooms grown in our system increases x3 under LED compared to Fluorescent light of the same strength and quality in the same environment. Vitamin D has several important functions. Perhaps the most vital are regulating the absorption of calcium and phosphorus and facilitating normal immune system function. Getting a sufficient amount of vitamin D is important for normal growth and development of bones and teeth, as well as improved resistance against certain diseases. Mushrooms have long been known as a good source of vitamin D; however, our work has shown how the vitamin content can be greatly increased with LED light at lower cost. The system yields approximately 200kg /week of mushrooms when in full production.

The Process

The Mushroom Garden's growing system is an energy efficient indoor cultivation process. It requires a single-phase electricity supply to power lighting and air removal pump and humidistat and clean water. The system and the process are based on integrating basic biology and technology and can be sited in

the built living environment both rural and urban. The growing process is composed of two elements both of which take place in converted insulated 20ft shipping containers with basic freely available equipment and fittings. The containers in Figure 20 are from The Mushroom Garden Snowdonia.

Figure 20: Growing Containers

Container 1 - Preparation of growing substrate

The substrate (wood chip and sawdust) is sterilized in purpose made plastic bags with breathers in large pressure vessels. Heat from burners fuelled by gas cylinders is used to raise the temperature in the pressure vessels to 120°C for 4 hrs Then the vessels are allowed to cool, removed and inoculated with mushroom spawn (the germinating spores). This is kept for 8 weeks in a warm environment (25°C) until the bag is completely colonized and forms a block with a hard outer crust.

Container 2- Cultivation and harvesting.

The bags are removed from the incubating container to the fruiting container where the temperature is 15° C with 97% humidity and hourly air change to keep CO2 levels low. The process requires 12 hrs light per day - this can be ordinary fluorescent tube lights or preferably LED. The combination of these changes shock the fungal mycelia to form fruiting bodies i.e. the mushrooms. This process takes 2 weeks to complete, as shown on Figure 21 and Figure 22.

For the first few years the unit grew only Shiitake mushrooms, then following enquiries and requests from customers to supply other mushroom species it was decided to explore the cultivation of Wood Oyster mushrooms, and to attempt to grow both species in the same environment. It was discovered that there are no negative effects in terms of mushroom yields per block. Neither has there been an incident of cross infection ie Wood Oyster mushrooms growing on the shiitake blocks or vice versa, therefore with careful management each species can be harvested separately. This provides the opportunity to widen the range of species grown at the same time in the same environment thereby adding to the diversity of production, thereby increasing attractiveness, sustainability and productivity of the system. The energy efficiency of the cultivation process has been monitored closely with energy input and distribution of heat and light within the growing container. The change from Fluorescent to LED while increasing the Vitamin D content of the Shiitake mushrooms had no effect on the yields of mushrooms or their quality.

Figure 21. Inside Container 2

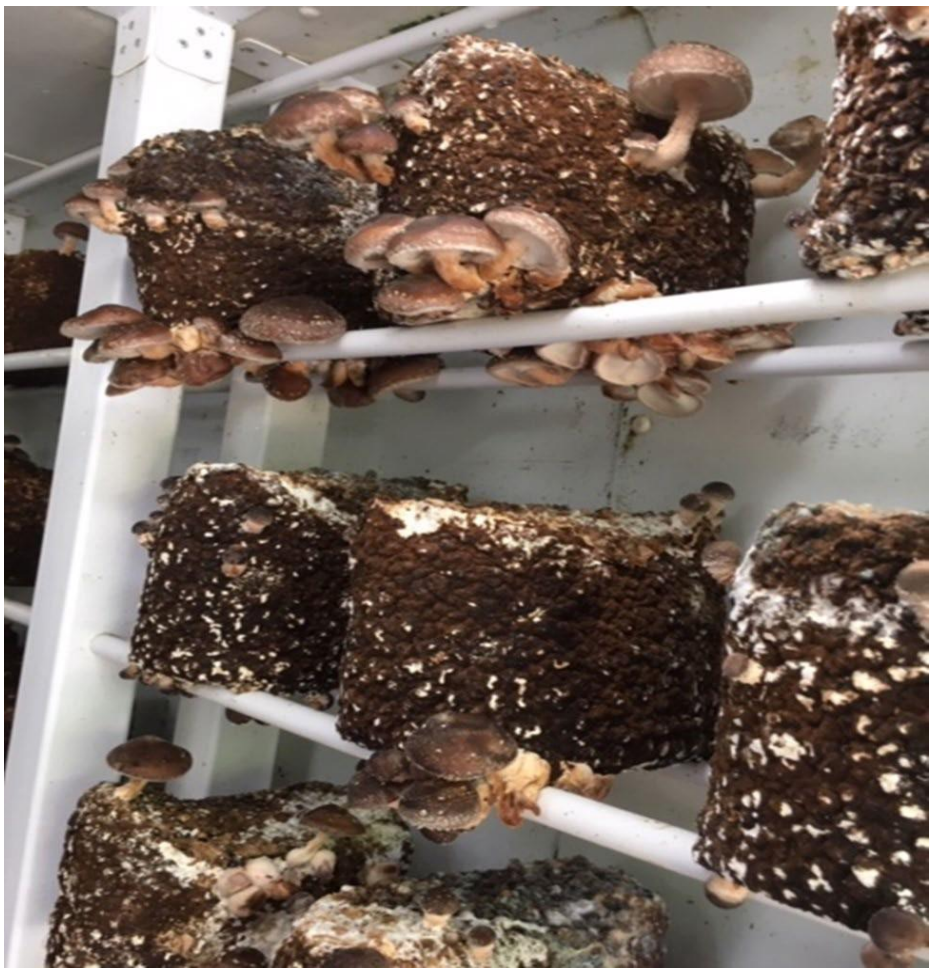

Figure 22. The growing blocks fruiting with Shiitake mushrooms

THE APPLICATION

This section will illustrate the application of the container and the flexibility of the system on three case studies in different locations.

Case Study 1: The Mushroom Garden Snowdonia- Wales

This original cultivation unit has been operational since 2006. The unit can hold 300 growing blocks and produce yields of 150kg/week of Shiitake or Wood Oyster mushrooms. Below is shown the proprietor harvesting the mushrooms in container 2 (see Figure 23). The business soon developed products based on the mushrooms, for example Dried Shiitake mushrooms and dried Oyster mushrooms - this means that there is very little waste, and the shelf life and storage time of the mushrooms is greatly increased from 7 days in a chiller for fresh to 12 months ambient for dried. Recent development has seen the production of blended seasonings based on the mushroom powders made from the dried mushrooms. The fresh mushrooms are sold to local restaurants, delis and farm shops thereby supporting the principles of the foundational and circular economies. The dried products and seasonings are sold further afield all over the UK as they travel well and have a long shelf life. These products provide added value to the business, avoids waste and create an income stream that helps the sustainability of the business. The used mushroom blocks are composted and offered to local gardeners as a mulch again closing the loop in a circular economy.

Figure 23. Harvesting the Shiitake mushrooms

Case Study 2: The Battlesteads Hotel Hexam Northumberland England.

The Hotel is situated in the village of Wark in Northumberland. The establishment is more than a traditional Hotel with accommodation a bar and restaurant. The business prides itself on serving locally sourced produce, complimented by their own home-grown fruit and vegetables, prepared to an exceptional standard by their chefs and kitchen team. They are a foundational economy business as they supply a basic need i.e. food for the community which is produced locally. Composting waste to be used in the hotel's market garden closes the loop in the food production cycle.

The Mushroom Garden system, as described in the first case study fitted in to the ethos of the hotel perfectly enabling the sustainable cultivation of quality products all year round. The power, heat and water for the growing unit is provided from sustainable sources at the hotel and the spent mushroom growing substrate is composted with other hotel organic waste (see Figure 24).

Figure 24. Battlesfield Hotel Vegetable Garden

Case Study 3 - Awen Cultural Trust Bridgend Wales -B-Leaf

Awen Cultural Trust was established in 2015 as a charitable organisation with objectives to enhance cultural opportunities in Bridgend and the wider region. Its purpose is to make people's lives better by providing space and opportunity for people to enjoy vibrant cultural experiences that inspire and enhance their sense of wellbeing. Their values of social inclusion and opportunities for all are enshrined in everything they do, from how they interact with customers and partners to how they work internally with colleagues, staff and trainees.

One project within Awen Cultural Trust do is the B-Leaf work-based initiative for adults with disabilities located in the Bryngarw Country Park. It operates as nursery and garden centre and provides an extensive training programme in horticulture and grounds maintenance. Trainees and staff are all local to the Bridgend area. The Park with its and extensive grounds provide much needed opportunities for leisure and exercise for a highly populated post-industrial community on their doorstep. The addition of the market garden and shop adds value to the Park experience and as such this is a prime example of a Foundational Economy project which the mushroom growing enterprise enhances (see Figure 25).

As a means of increasing the training and business opportunities at B -Leaf, the Mushroom Garden was approached with the aim of establishing a Shiitake and Oyster mushroom growing enterprise. This activity would provide new experiences for the service users, diversify the range of products cultivated and create a new income stream to the project. In these days of economic uncertainty, a consistent income stream as is provided from the sale of the cultivated mushrooms the new enterprise increases the sustainability of the business and provides the local community with a regular supply of nutritious foods. This is an exciting development for the Mushroom Garden as the company has always believed that the system is ideally suited to a social enterprise and specifically an enterprise working with people who have learning challenges.

Figure 25. Staff and Trainees at Awen Cultural Trust

Critical concepts for the future of cities and regions as demonstrated by the case studies

The mushroom growing system is robust and flexible to meet the needs of a range of communities. Individuals can be trained to use the system in a few days and the skill level required is low. Initial training is 2 days intensive input either at The Mushroom Garden site or on the location where the growing facility is to be established, followed by up to 10 days mentoring on site to ensure that the growing conditions are working and that the operators understand how to control the conditions and to0 harvest the mushrooms. As the system is modular (i.e., based on converted shipping containers) upscaling is achieved by commissioning more containers. In an urban area public services can be very useful in upscaling eg by organising supplies of wood chip from municipal parks and roadside tree surgery. This is where input from public services can be very helpful e.g. sourcing and transporting the substrate from municipal sites to the growing facility, and also on the demand side by distributing the mushrooms to the communities and neighbourhoods that need them. The system fits perfectly with community food growing projects, city gardens and farms. Upscaling is not a problem as the process is modular so commission more shipping containers.

There are opportunities to explore using other substrates to grow certain nutritious mushrooms (eg Wood Oyster) such as spent ground coffee and hops from breweries.

Sustainable production of food

The substrate to grow the mushrooms is wood oak chip and sawdust. It is sourced from local sustainably managed woodlands and traditional furniture makers. Energy input is low, at a daily cost of approximately £6.00 and there is continuing development on increasing the energy efficiency of the process. In addition to this, the Battlesteads Hotel generates its own electricity by solar panels. The growing rooms are of low maintenance in respect to the equipment and fittings so that it keeps costs to a minimum. Labour input is low grade in terms of skills and the work is not heavy. Therefore, it is ideal for part time workers and/or family members on shared households to undertake.

The Circular Economy

The growing substrate is waste product from wood production. The used substrate, ie after the mushrooms have been cultivated and harvested is returned to the land through gardeners and farmers as mulch/compost/soil build up material and water retention material. The Handbook of Waste Management from 2009 discusses the importance of reducing and reusing waste in the food industry **[11].** The book demonstrates that there are clear economic benefits to the industry if a circular economy approach is taken in food production in general. It secures clear environmental benefits to the planet by efficient use of ingredients and raw materials and reducing waste. The book discusses strategies to address the issues of waste production and reusage are discussed such as tight supply chain management, capture and re use of water and the re usage of organic waste from production to cultivate other foods. These approaches have been developed by mushroom growers in recent years eg growing Oyster mushrooms on used coffee grains and also spent hops from breweries. Both these substrates have been trialed successfully by The Mushroom Garden.

The Mushroom Garden system mirrors such strategies. Closed circle food production is critical to future development as it keeps production locally, thereby reduces the carbon footprint of the enterprise as well as waste and pollution. Another Circular aspect of the system is that income generated from the sale of mushrooms is spent locally by the business. The economic impact of keeping spending locally is demonstrated by a report by the New Economic Foundation [12] The findings were that for every £1.00 invested or generated in a community 52p is retained in the local economy , furthermore every £1.00 spent generates a further 71p in the local economy.

The Foundational Economy

A basic principle of the foundational economy is to supply a community's needs as the basis of a local economy, those needs are physical eg basic services, utilities and food but also social needs eg health education and security. All three case studies demonstrate the process of local production distribution and purchasing of food within their communities and as such demonstrate a perfect fit for the foundational economy principle. The units are very robust and can be sited within most communities, urban or rural such as city courtyards, urban farms, traditional or vertical or garden. In fact any communal space with access to clean water and single phase electricity. The main advantage is that the produce can be grown all year round as the cultivation conditions are carefully controlled.

It therefore makes it possible to provide a consistent supply of nutritious food to a community from within that community.

Food Security

In all cases studied the products travel very little food miles, no more than 20 miles and in the case of the Battlesteads Hotel about 20 meters! therefore the food is produced and purchased in the same vicinity. The raw material used to make the substrate can be sourced locally, wood chip and sawdust for Shiitake, straw for Oyster mushrooms, or in fact any organic material including processed organic material such as paper. Reducing food miles is crucial to reduce food insecurity and carbon footprints, and to shorten the food chains. Such measures have been brought into close focus recently with the Covid -19 crisis and ongoing uncertainties with supply chains from the EU following Brexit. This discussed model is looking to the future of Agro-architectural application for transition to Post-Anthropocene era cities and regions where people, other species and technology benefit from each other and flourish. These growing units are situated within the communities they serve reducing food miles and dramatically reducing supply chains.

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APPROPRIATION, INTERACTION AND CONFLICT IN TEMPORARY PUBLIC SPACE

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INTRODUCTION

Temporary interventions in public space are becoming important tools for rethinking and changing urban environments. [1] They prompt a more democratic approach to change because they facilitate knowledge around participation, appropriation and use of public space.[2] From a case study approach, this paper will describe how temporary interventions can respond to new democratic needs while progressively generating new social life and a sense of place.

This research will consider the Tory Street temporary project as a case study from which to extract applicable knowledge. The Tory Street project was the product of a partnership between Landscape Architecture/School of Architecture/Victoria University of Wellington (SoA/VUW) and Wellington City Council (WCC), New Zealand. Using participatory processes, the parties collectively designed and implemented a temporary intervention with local stakeholders. Research around new ways of decision-making and use of public space was developed from the case study.

The analysis methodology of the use of a temporary public space innovates by using parametric data to highlight how time, environmental conditions and spatial components shape the type of users and activities. Through practice-based research, this paper showcases how the space was colonized and how a progressive sense of place was experienced. It presents how tensions arose between different types of users and how conflicts were minimized by introducing changes to the space. Finally, this research demonstrates the value of temporary interventions for developing more democratic approaches to urban change.

THE TORY STREET CASE STUDY

The Tory Street project highlights the work that the landscape architecture programme of VUW has been developing over the last few years, exploring the possibilities that real projects offer to universities in terms of education and applied research. The methodology developed was conceived as an evolution of previous projects. This project facilitated the development of social capital between the community, local government and a tertiary institution.

Partnership between the university and local government

Partnerships between universities and communities are valuable personal and collective experiences where learning is maximized and economic interests either do not exist or tend to be secondary. [3] Partnerships are also useful instruments for generating shared ideas that can be carried through to implementation following participatory design methodologies.[4] By facilitating different and subsequent

partnerships, a methodology can be developed over time by the university, seeking to maximize the outcomes for communities, students and academics.[5]

The goal of the partnership between SoA/VUW and WCC was to work together to propose a joint project that delivered a temporary, small scale intervention in Tory Street, Wellington. Tory Street is a strategic axis of Te Aro, an urban fabric that has elevated socioeconomic activity and the potential to become pedestrian-dominant in the near future. The concept behind the project was to utilise the expertise of SoA/VUW to run a participatory project in which the parties collectively designed a temporary intervention with local stakeholders in lower Tory Street. The agreed design was implemented by WCC with the assistance from SoA/VUW. Most of the elements were relocated and reused when the implemented design was removed. Research around the project has been developed by SoA/VUW.

Figure 1 – workshop with local community, construction, opening event (from left to right)

Experiencing practice-based education and research

Partnerships allow universities to expand its social responsibility and facilitate the learning of new ways of understanding citizenship through collective experiences, activating bottom-up approaches to decision making.[6] At the same time, partnerships enable practice-based education and research. Students can begin to develop skills relevant to practice, exploring links between speculative and pragmatic approaches to design with non-technical audiences. Students can also learn about new professional identities underpinned by civic engagement and social responsibility. New roles that are emerging and starting to be relevant in landscape architecture, such as facilitator, educator, mediator, collaborator, activist and builder, are experienced through these types of projects.[7]

In contrast to practitioners, universities interested in practice can develop research around processes, methods and performance of implemented projects.[8] University has both the time and access to resources for developing research after implementation, something that practitioners rarely have. Research from the Tory Street temporary project was developed into two different directions: how the design was conceived, implemented and adapted (the participatory process), and how the temporary space was used (an assessment of public life). A brief description of the research is described in this paper.

Developing a participatory project

The design process started through different workshops with the local community, where students developed their initial proposals, getting feedback and considering the aims and needs of residents and business owners. Following these workshops, other workshops were organized with wider public to discuss the future of Tory Street and the future of the central city as a whole. Eleven teams of students developed different designs to concept design stage. These final designs were presented to the public at an exhibition and disseminated through the media. The public voted for their favourite proposal either at the exhibition or online using social media specifically arranged for this process. The participation through voting was one of the highest that WCC has ever had for similar projects. The winning proposal

was developed by a team of students and teaching staff and supervised by WCC officers. During the final design stage, further feedback from local community was received though different events. The eleven concept designs, the detailed design and most of the construction documentation were developed as part of a university course.

Reclaiming public space from cars

The design aimed to provide a sense of place to the street by prioritizing pedestrian space and creating a destination for relaxation, play, shopping, eating, forum and education. The design reduced traffic flow to a one-way lane, removing onsite parking except for three loading zone areas. The driving lane included a chicane for reducing speed while creating three different areas for pedestrians, two adjacent to the intersecting streets and one in the central area. This street layout allowed the expansion and integration of the sidewalks with the reclaimed public space.

The central area of the street, flanked by an existing fence, was conceived as a flexible space to attract a wide range of users and activities. The two other areas were focused on hospitality and recreation. Located in one of these areas was a container housing information related to the project, where the public could provide feedback. Local businesses were assigned outdoor spaces that they could occupy. Paint and planter boxes were displayed throughout the three different areas, providing continuity to the project. In the central area different typologies of platforms were located with the aim of facilitating social interaction and flexibility by providing a wide range of spatial settings.

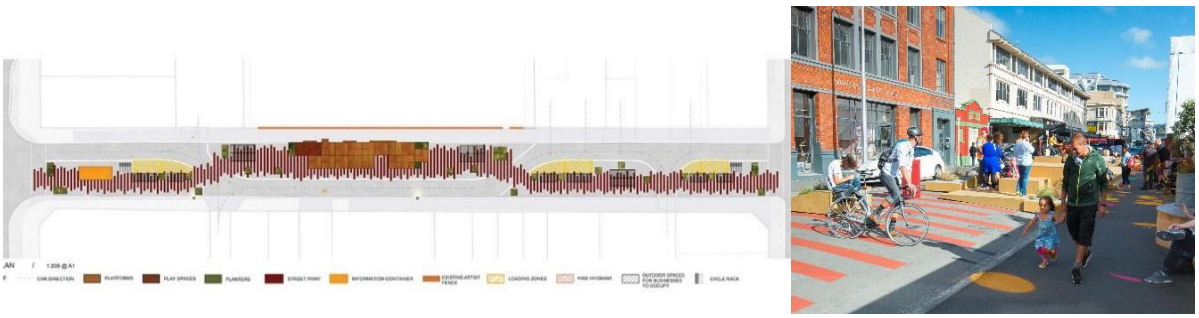

Figure 2 – Overall plan and central area (from left to right)

THE VALUE OF TEMPORARY PROJECTS

Compared to permanent interventions, temporary projects in public space have specificities concerning the way public space is designed, constructed and used. A brief summary of the particularities of temporary interventions will be discussed in this section by relating those to the case study.

New ways of designing: adaptability and engagement of the local community

Public engagement tends to be stronger in temporary projects because they are usually conceived for testing. Consequently, design processes and implemented designs are more flexible and adaptable.[9] In order to maximize the success and the impact of temporary projects, it becomes essential to establish special importance to the engagement of the local community during the whole lifespan of the project, from preliminary design to post-implementation.[10]

The engagement of the local community in the Tory Street project followed different stages: participation, delusion, conflict, consensus and full engagement. The design development was really successful, with most community members involved in the participatory design process. As a consequence of a delay in the implementation and a lack of communication during that period when implementation was stalled, momentum was lost, and several community members reacted negatively

to the project when construction started. This negative reaction was aggravated after implementation and started to become a political issue at city wide scale when the conflict was taken up by the local media and city councillors. The designer (VUW) and the project manager (WCC) reacted quickly and responded to the conflict. Several changes to the already installed-design were made in agreement with the sector of the community that was against the project. In addition, WCC agreed to invest more resources to improve the management of the area such as cleaning, enforcing parking regulations and mediating with disruptive uses of the public space.

The changes in the space were introduced after four weeks of the design being implemented. These changes were related to impeding skateboarding on the platforms of the central area, slowing the traffic by introducing speed bumps and upgrading the loading zones by expanding their area and improving signage. Changes were successful and conflicts were resolved, with a vast majority of the local community fully engaged during the final stage of the implemented design. When the project was removed, the relocation of the planter boxes and platforms into different spaces in Wellington garnered involvement from other community groups and reinforced the engagement of local communities throughout the project.

Figure 3 – Informative/feedback container, central area and relocated planter boxes (from left to right)

Learning from collaboration and participation

Temporary projects contribute to different ways of understanding urban change by implementing ideas and learning from them. They enhance collaboration because they minimize risks, resources and time frames. [11] Communities, designers, urban planners, public administrations, companies, artists, universities and activists can collaborate through temporary projects. Partnerships can be a useful way to formalize collaboration and facilitate the success of a project.[12] The Tory Street partnership was a completely new experience for both partners. Before this project, SoA/VUW developed participatory projects with communities and WCC developed similar projects using its own resources or contracting. The Tory Street project acted as a catalyst for participation, with an immense number of actors involved throughout the process, including university staff, students, council officers, politicians, volunteers, local community, community groups and the public. The peculiarity of the partnership made the learning component especially relevant. The faculty was able to develop practice-based research and students

learned through experience many skills related to practice such as participatory design methodologies; how to do presentations for competitions; how to interact with media; or how to develop a design through to implementation. The council learned important lessons related to the need to improve local engagement by establishing personal and regular interaction with the local community, especially before, during and after construction. The council also learned ways to better communicate the objectives of a temporary project through the media in order to improve public engagement and support for urban change. Finally, the public had the chance to participate in the development of a temporary project and influence the debate around the future of the area.

Figure 4 – Online voting, project dissemination, students during construction (from left to right)

Low cost, new aesthetic and specific ways of constructing

Costs in temporary projects tend to be lower than in permanent interventions because they avoid major infrastructural interventions and try to maximize the impact of the *'new'* public space while minimizing the use of resources. [13] This low cost spirit together with the requirement that all design elements are removable impact the range of construction systems and materials, shaping a specific aesthetic. This new aesthetic in public space is still going through a process of assimilation by the public.[14] It already has many supporters, especially due to values related to more sustainable approaches to urban change, but many users still do not engage with temporary projects due to the fact that 'look cheap'.

The Tory Street project minimized costs successfully, especially considering the large area that was transformed. The only costs during the design process were related to the organization of participatory events. There were no design fees because the project was the product of a partnership with a public tertiary institution. Several strategies were used in order to reduce the costs of construction. The design was conceived for easy assembly, transport, dis-assembly and relocation of the different design elements, facilitating a quick and efficient construction processes. Sponsorships and WCC resources were used to cover most of the material costs.

The palette of materials of the project was limited to timber, paint and planted areas. Different sponsors donated most of the paint and timber. Most of the plants used in the project were transplanted from WCC parks and gardens and kept in WCC nurseries, where the planter boxes were assembled. Platforms and planter-boxes were modular and adaptable, using recyclable and standard materials from the NZ timber industry. The temporary project was designed to be ultimately adaptable, easily removable and able to be re-sited into different locations. Platforms and planter boxes were donated by WCC to different associations and placed in different areas of Newtown, Wellington.

Temporariness, new social life and research

Following a strategic approach, temporary interventions tend to be placed in areas that do not have relevant social life. [15] They are used for transforming spaces where there are no pre-existing patterns that determine how users experience the space. Therefore, temporary interventions facilitate knowledge

of different ways of spatial appropriation. They also enable observation of interaction and conflict between users that experience public space differently. As a consequence, temporary projects present excellent opportunities for developing research around the use of public space. [16]

Research was developed for analysing the public use of the Tory Street temporary project. The flexible space placed in the central area of the street was targeted for developing research. The focus of the research was to assess how activities were developed as conditioned by time factors, environmental conditions, spatial components and types of users. The research objectives included the assessment of:

- the parameters that condition the use of public space in Wellington, by analysing a temporary case study
- the public activity that the temporary case study facilitated
- the success of concrete aspects of the design for promoting different activities
- the impact of the changes introduced in the space during its lifespan.

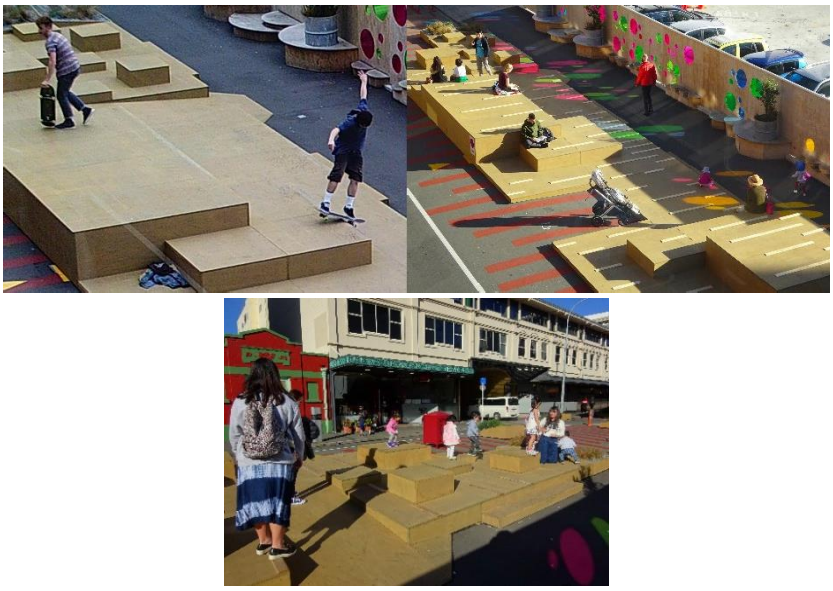

Figure 5 – Central area before and after the introduced changes (from left to right)

Developing knowledge around the use of public space

The aims of the research were to demonstrate the success of the temporary public space and to extract applicable knowledge useful for other projects. The applied methodology aimed to contribute to building new knowledge by exploring data management and production of graphic information. The different categories of analysis (time, environmental conditions, space, activities and users) were broken into different subcategories. These subcategories were parametrized using specific software, producing independent digital data that was possible to edit and interrelate. Interrelating the different categories determining certain scenarios allowed the generation of specific data and graphic information, such as 2D/3D maps, tables, graphs, etc. Importantly, interrelating categories facilitated reflection and production of findings related to the impact of the project in terms of public use. [17]

From the range of research findings, it was possible to observe how:

- Patterns of use and a progressive sense of place are built over time in new public space, especially during certain periods, such as lunchtime, after work hours or weekend mornings.
- Pedestrian patterns are changed by temporary projects, improving the walking and cycling experience by modifying regular journeys in urban fabrics.

- Temporary public space can respond to the needs of children and families in dense urban environments, improving their quality of life by creating new areas where formal, informal or incidental play can be experienced.
- New public space is really attractive for developing urban sports such as BMX, parkour or skateboarding, but these activities tend to create conflicts with other types of users and local communities due to the way the public space is used.
- Gender conditions the use of public space in terms of amount of users, the type of activities that are developed and the way that these activities are developed. There are less females in public space, but they socialize more than males, especially during certain periods.

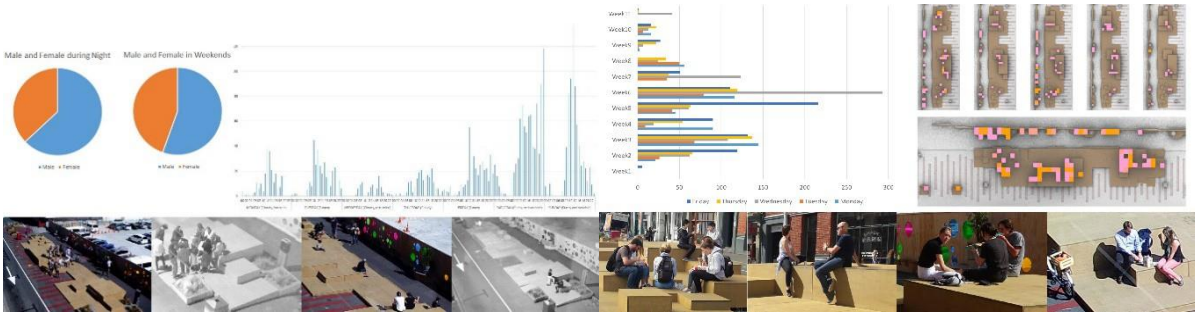

Figure 6 – users by gender, total users, users at lunchtime (from left to right)

CONCLUSION

Temporary interventions in public space are an emerging interdisciplinary research area. Our public spaces are increasingly temporary, and the theories, principles and tactics with which we designed public space in the past, need to evolve. Temporary projects present excellent opportunities for developing new knowledge around urban change. They can facilitate learning of more democratic approaches to decision-making, where public engagement is considered a key element that spans the whole length of a project and not just a trendy formality that is done at the beginning. Temporary projects also provide opportunities for educating citizens about more sustainable urban environments, testing ideas through collaboration while experiencing a phased approach to urban change. At the same time, temporary interventions facilitate research around the use of public space, not just for assessing the performance of specific projects, but more importantly for learning about patterns of use and conflicts in public space, providing knowledge for designing more inclusive urban environments.

This research aims to contribute to the debate around the validity of temporary interventions for reshaping urban environments. Developed from University, this research demonstrates that by adapting roles associated to practice, universities have the opportunity to contribute to the discipline by developing research that practitioners usually cannot do due to knowledge, time or funding constraints. Ultimately, this research aims to showcase that by practicing, universities can complement practice.

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MEASURING RESIDENTS' PREFERENCES REGARDING ATTRIBUTES OF GREEN IN NEIGHBOURHOOD PUBLIC SPACE USING A VIRTUAL REALITY BASED STATED CHOICE EXPERIMENT

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INTRODUCTION

Public space is an important component in the built environment, and it plays a key role in sustainable city development. Public spaces are all places publicly owned or of public use, accessible and enjoyable by all for free and without a profit motive.[1] Among them, parks, squares and streets are integral parts of any urban area. Where public space is inadequate, poorly designed or privatized, the city becomes increasingly segregated, un-attractive and sometimes unsafe.[2] [3] In recent years, there has been an increasing interest for municipalities in promoting the quality and quantity of public spaces and to obtain higher density in the built environment. A considerable amount of literature has shown the multifunction of green in public space such as improvement of environmental quality, health and social performance, stress restoration and property values.[4] [5] However, empirical research on residents' preferences regarding green in neighbourhood public spaces is still limited.

This paper integrates SCE with VR to study users' preference of green in neighbourhood public spaces. The remainder of this paper is organized into four sections. The first section deals with the existing literature on user preferences of public space. The second section describes the attributes selection process. This is followed by the virtual reality based stated choice experiment design in Section 3. The last section discusses directions for future research and contributions.

LITERATURE REVIEW

Green in neighbourhood public space

In Europe, more than 75% of the population live in urban areas. Public space covers sometimes over 50% of the total area of our cities.[1] With the increasing population migration to cities in the Netherlands and worldwide, both densification of real estate and maintenance of green public space are becoming increasingly important.[4] [6] Public space can improve environmental quality, health and social performance, stress restoration and property values.[4] [5]At the neighbourhood level, the availability of green in public spaces affects the environmental quality, helps in stress restoration, enhances feeling of social safety, [7] [8] [9]creates a sense of community, gives residents a chance to meet and share life together,

and potentially contributes to their health .[10] [11] [12] Green public spaces can also improve property values, [13] [14] provide a play space for children's physical and mental development.[15]

User preferences of public space

A large and growing body of literature has investigated users' preferences of neighbourhood public spaces design. These literature ranges from the famous studies in the 1970-80s such as Jan Gehl's field research by marking, counting and tracking of users in public spaces[2] and Whyte's study using film cameras and observation in the 1980s[16] to more recent trends of quantitative analyses of preferences for green in public spaces with the help of statistical models and by manipulating specific spatial elements in experiments. [4] [21] The design elements of green public spaces discussed can be summarized into two categories: natural characteristics and visual form of open spaces. The first category includes common natural elements such as water, trees and bushes and lower ground vegetation of open spaces and also the shape, colour, scale and texture of these elements. Previous studies have shown significant links between those natural elements and users' public space. However, studies on natural elements are mostly limited to parks as study cases. Little is known about users' preferences of green in small-scale open spaces of high-density urban neighbourhood which includes both street and blocks of small open spaces. Meanwhile, promising green solution can be found in this kind of small scale public open spaces in compact built environments[1]. Thus, our research will mainly focus on green elements in small scale public spaces.

The second category is visual form of open spaces and includes elements such as open space dimensions, land use intensity, depth/height ratio, shape and facades styles. These elements are mostly discussed from an aesthetics point of view and existing findings are mostly based on practical experiences from designers. [2] [16]

In the context of small-scale neighbourhood open spaces, several common design elements are described briefly below. The amount of open space represents the total area of the block shaped open space is a widely discussed design factor of the availability of open space. [2] [17] However, different studies showed inconsistent results of the influence this attribute has on users' preferences. [18] Studies showed the amount of green in open spaces has significant influence on residents' willingness of visit, but it is still not sufficiently clear whether an open space without greening would have the same effect. Besides, water storage becomes an increasingly important consideration of public space design in the context of rain flood management, whereas residents' appreciation of this element is still unclear. Grass along the street and greening intervention (trees) are two design elements of streets. Previous studies indicated these two element have significant links of people's walking route choice. [19] However, urban public green space project always includes both streets and several block of open space linked to them. It is still not clear whether the street design factors would be important for users when the factors of open space along the street are also taking into account. Vertical greening or 'green facades' may also affect residents' perceptions and preferences. Vertical green is increasingly used to reduce temperatures of building and to provide aesthetic appearance of green. However, thus far little is known about how this space-saving greening approach contributes to the attractiveness of open spaces close to it. Finally, as more and more cities are now pursuing for higher density and greener public spaces at the same time, it is worthy to know whether surrounding land use intensity will influence residents' perception of open space quality and attractiveness.

The literature also indicated three main types of factors that influence user's preferences regarding spatial elements, namely, socio-demographics, public space usage and characteristics of resident's neighbourhood. Firstly, socio-demographics such as age, gender, working experience and education

level have been found to influence users' preferences for public spaces. For example, Schipperijn et al. (2013) have found that health and education levels have a significant relation with physical activities in the nearest urban green spaces.[20] Hereby, age, health and education have a significant association with outdoor physical activities. Qin et al (2013) showed that differences in satisfaction with green spaces between age groups is significant.[21]-Furthermore, several studies indicate that people display the same preferences for green spaces in spite of gender differences[22] [23]while others also reported a gender difference.[24] [25] Secondly, existing studies also showed that characteristics of respondents' neighbourhood are correlated to their preference for public spaces. The residential density was also reported to influence residents' public space preference.[26] [27] [28]

Previous studies also indicated mainly 4 types of motivation for people to use a public space, [11] [29] [30] [31] [32] namely, physical activity, social interaction, recreation and stress restoration. Whereas the knowledge about how different motivations of usage influence user's preferences of the combination of spatial attributes of neighbourhood public spaces is still limited.

VR based stated choice experiment

The proper measurement of preferences in the context of public space calls for both a well-structured preference measurement method and intuitive ways to present design alternatives. The application of choice experiments and modelling as preference measurement tool in the built environment has a long tradition. Recently, computer-based visualizations of environments are increasingly used in user-oriented built-environment research.[33] [34] Existing findings support the idea that 3D simulated environments may yield greater external validity due to their higher level of realism. [35] [36] The results of an additional, controlled experiment indicated that VR headsets provide higher engagement and more vivid memories than viewing the designs on non-immersive displays.[37] Recent studies also showed the potential of integrating VR with stated choice experiment to study users' preferences in a built environment context.[36] [38] [39] These studies focused on users' street and square preference in a VR-based 3D environment. Although progress has been made, the technique is still in its infancy. Besides, there is still a lack of such research on neighbourhood public space combined with urban sustainable strategies. Thus, the combination of discrete choice modelling and VR has large potential in preference measurement method optimization.

Summary

Natural characteristics and visual form are two main types of design attributes discussed in existing studies of green in public spaces. While there is evidence for the existence of associations between these attributes and users' preferences, there is still a lack of evidence for urban designers and policy makers for optimal design of small scale public open space attributes to improve users' experience. **Error! Bookmark not defined. Error! Bookmark not defined.** Existing studies also lack integration with specific local sustainable strategies. Meanwhile, some results of studies form different social and environment contexts about users' preferences of neighbourhood spatial characteristics are contradictory. Thus, this study focuses on common public spaces within small scale neighbourhood open spaces and streets. Sustainable design strategies are also taken into account to offer insights into public space development. A VR-based stated choice experiment is proposed here for both achieving accurate measurement of user's preference and to determine the added value of using immersive environments in a stated choice experiment.

ATTRIBUTES SELECTION

To start the stated choice experiment (SCE), the list of attributes needs to be refined. Researchers indicated that more than six attributes in a SCE could render surveys confusing and too much for

respondents to process, [35] [40] while eight attributes SCE with the use of a fractional factorial design have also been conducted successfully.[41] [42] Since this study will use VR devices, the feasibility of transforming attributes into visual form was also considered. We finally determined seven spatial attributes for the experiment, namely, A1 Amount of open space, A2 Surface of the open space, A3 Water storage, A4 Grass along the street, A5 Greening intervention (trees), A6 Vertical greening and A7 Average number of building stories (Table 1). Then with these 7 attributes, 8 profiles have been generated based on an orthogonal fractional factorial design (Table 2).

Type	Attributes	Attributes levels	
PARK	A1 Amount of open space	Level 0: 750m2	Level 1: 1500m2
	A2 Surface of the open Space	Level 0: pavement	Level 1: grass
	A3 Water storage	Level 0: No	Level 1: Yes
STREET	A4 Grass along the street	Level 0: no grass	Level 1: grass
	A5 Greening intervention (trees)	Level 0: No	Level 1: two side
BUILDING	A6 Vertical greening	Level 0: No	Level 1: Yes
	A7 Average number of building stories	Level 0: 3	Level 1: 5

Table 1 Attributes and levels

Attributes / Profiles	A1	A2	A3	A4	A5	A6	A7
Profile 1	750m^2	Pavement	No	No	No	No	3
Profile 2	750m^2	Pavement	No	Yes	Yes	Yes	6
Profile 3	750m^2	Grass	Yes	No	No	Yes	6
Profile 4	1500m^2	Grass	Yes	Yes	Yes	No	3
Profile 5	1500m^2	Pavement	Yes	No	Yes	No	6
Profile 6	1500m^2	Pavement	Yes	Yes	No	Yes	3
Profile 7	750m^2	Grass	No	No	Yes	Yes	3
Profile 8	750m^2	Grass	No	Yes	No	No	6

Table 2 Profiles

VR-SCE EXPERIMENT DESIGN

Generating choice sets

At the beginning of the experiment, each respondent will be presented 4 randomly composed choice sets consisting of two profiles of street block each. An example of a choice set is shown in Table 3. For each choice set, the respondents will be asked to rate the overall satisfaction with each of the two public space profiles after having experienced them in VR on a 7-point scale (1=very dissatisfied, 2=moderately dissatisfied, 3=slightly dissatisfied, 4=neutral, 5=slightly satisfied, 6=moderately satisfied, 7=very satisfied). Then, they will be asked to indicate how attractive it is to go for and walk/ chat with people/ or do some exercises in each street block **Error! Bookmark not defined.** [30] using again a seven level Likert scale ranging from 1 strongly disagree to 7 strongly agree (based on previous study of Sugiyama et al.2008 and Neighbourhood Environment Walkability Scale). Afterwards, affective experiences will be asked to detect how emotions play a role in the satisfaction formation process of respondents to the street block based on Oliver's (1997) and Bigne´s (2005) scale.

	
Profile4	Profile1

Attribute	**level**	**Attribute**	**level**
A1 Amount of open space	1500m^2	A1 Amount of open space	750m^2
A2 Surface of the Public Green Space	Grass	A2 Surface of the Public Green Space	Pavement
A3 Water storage	Yes	A3 Water storage	No
A4 Grass along the street	Yes	A4 Grass along the street	No
A5 Greening intervention (trees)	Yes	A5 Greening intervention (trees)	No
A6 Vertical greening	No	A6 Vertical greening	No
A7 Average number of building stories	3	A7 Average number of building stories	3

* In the real experiment, the public spaces are accessible immersive virtual environments, not images as showed here. The text description of attributes will not be presented to participants in order to study whether the virtual environment can effectively present the required attributes of the experiment.

Table 3. Example choice set

Virtual environment design

Each profile was designed as a hypothetical 3D virtual environment with 2 blocks divided by streets. Each block has a side length of 100m based on the common block scale of Dutch cities. The area of a 'street block' includes two types of public spaces: streets and a small block of open space. This basic unit could represent a daily accessible (10 min. walking) area for local residents and is feasible to transfer into a VR-experiment (Figure 2). We used Google sketch up and Unreal Engine 4 to construct the virtual environments (Figure 1). The façade style refers to common Dutch streets features and local new projects to present a familiar environment to respondents.

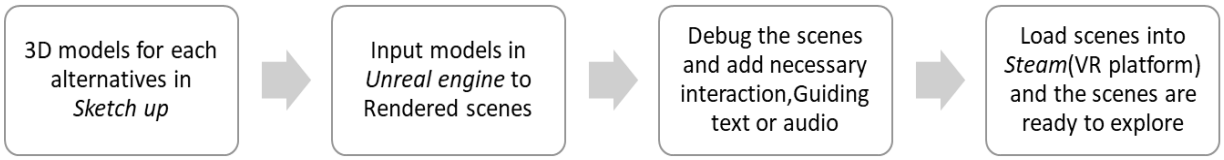

Figure 1. Virtual environment design process

Figure 2. Virtual environment (A street block) and the instruction interface of online experiment

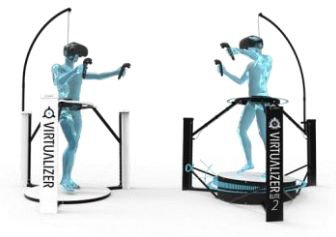

Figure 3. The physical set up of the Lab experiment

Physical set up

To determine the added value of using immersive environments, the experiment will be conducted in our VR Lab and through an on-line survey using an interactive game.

The physical set up of the Lab experiment includes a HTC VR headset and a VR treadmill (Figure 3). These devices can be connected to the computer and allow respondents to walk around freely in the immersive virtual environment. Respondents will arrive independently at the VR lab for their scheduled appointments. Each respondent will be shown the profiles of each choice set one by one. Although we still need to test this, we think it will take approximately 2 minutes for respondents to explore each profile. After exploring each choice set (consisting of two profiles), the respondent will be asked a series of questions about their satisfaction, preferred activity and affective experiences as we introduced above. Around 50 respondents will be involved, each of them would spend maximally 30 min. for the experiment. For the online experiment, an interactive game is designed with the same virtual environment (Figure 2). Respondents are able to navigate the environment in the first person view using keyboard control. The same design of profiles and questions will be presented to each respondent as in the lab experiment. The sample size of online experiment will be larger (around 200 persons).

CONCLUSION

In the paper, we introduced the design of a VR based stated choice experiment. Our study looked into the added value of using immersive environments in public space preference measurement. In the following steps, online and lab experiments will be conducted. After data collection and analyses, we will be able to dig out residents' preferences of public spaces related to different motivations. The following main contributions are expected to be made. Firstly, this research will provide an opportunity

to advance our knowledge of VR-based SCE in the field of built environment study. It will fill a knowledge gap of how to visualize and act upon the parameters that are relevant to planning/design of public space. Secondly, insight in the residents' preferences of public spaces provides the policy makers with references to public space planning/design decision. By extracting decision patterns of different groups of people, our research will support developers to evaluate development projects and to create attractive living environments.

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EXPERIMENTAL STUDY ON FRAGMENTED GREENERY AND THE PEDESTRIAN WAY'S EFFICIENCY OF USE IN THE CITY OF PÉCS

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INTRODUCTION

Middle and East European countries have been striving to develop both capitals and small-sized cities. In 2010 Pécs city with its 150 thousand inhabitants living on 162.1 square kilometers in southern Hungary had a chance to evolve; Pécs was the European Capital of Culture alongside Essen and Istanbul. The city motto is "The Borderless City"[1]. Due to that, a series of renovations and new constructions were taking place in the city as a benefit brought by the honorable title, including heritage building restoration, street and public space improvement and new infrastructure installation. The multi-spot development and city enhancements attracted continuously; increasing the number of tourist and international students and subsequently bring up the vitality of the city[2] [3]. While on the other hand, the number of local inhabitants is steadily decreasing annually, from 162.5 thousand in 2001 to 145 thousand in 2016[4]. The continuous decrease results enormously from the loss of young labors that leave the city for more job opportunities and more interesting urban or metropolitan life. This fact raises the question of how can Pécs retain its active population. Regarding the intricate approaches to solve the issue, the research seeks for solutions from an architectural and urban environmental design point of view, more specifically, the experience of using the city street network, which plays a substantial role in the user experience of urban life quality[5]. Developing the concept of a walkable city could have a remarkable impact on the daily life of city users and might be the needed solution.

This research paper aims to answer fundamental questions regarding the experience of the local street network in the city of Pécs. The research conducted using the perspective of both researchers assessing the city's streets and residents practically "using" the city's streets. The initial question was how to evaluate the efficiency of pedestrian pathways in Pécs and examine if they are walkable and satisfy the local inhabitants[6] and contribute to retaining the youth[7]? What are the possible solutions to improve the walkability of Pécs city to promote and enhance the quality of pedestrian experience through pathways and sidewalks? How to measure the limits and examine the boundaries of the proposed improvements?

Walkability and greenery

According to the Ten Steps of Walkability theory[8], it claims that walkability shall deal with vehicle lane, parking space, bike lane, safety, function interaction, connectivity, greenery, façade boundary and shape. The paper reviews the limits and potential of walkability improvement in terms of greenery aspect

under the historical urban context. The general theory of walkability by Jeff Speck states that to measure if walking is favored; a walk needs to fulfil four conditions: it must be useful, safe, comfortable, and interesting. The research attempts to investigate the effect of greenery on walkability improvement according to the criteria of general theory of walkability.

Defining the case study site - Kórház

The city of Pécs owns rich and diverse historical tracks, that can be traced back 6,000 years to ancient times. The wall enclosing the old downtown is one of the significant elements of the medieval city, it sets the entire medieval town of Pécs into two parts in terms of impression and physical appearance (Figure 27). The interaction and cross-influences give the wall high importance in terms of traffic and accessibility. On the other hand, the main corridors of the city (**Error! Reference source not found.**) define the geological position of the medieval wall and its connections. Considering the wall and its associated zones, an assessment of street typology is conducted and presented in the form of street sections. According to the streets sections analysis, the patterns classified into nine main types (Figure 26.Street sections patternsFigure 26) based on vehicle lane, pedestrian way and greenery.

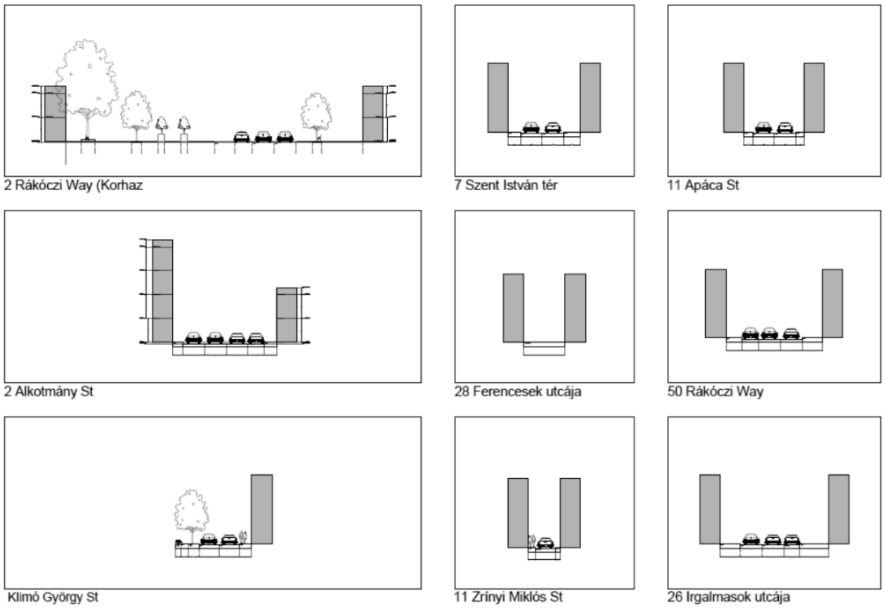

Figure 26.Street sections patterns, illustrated by authors

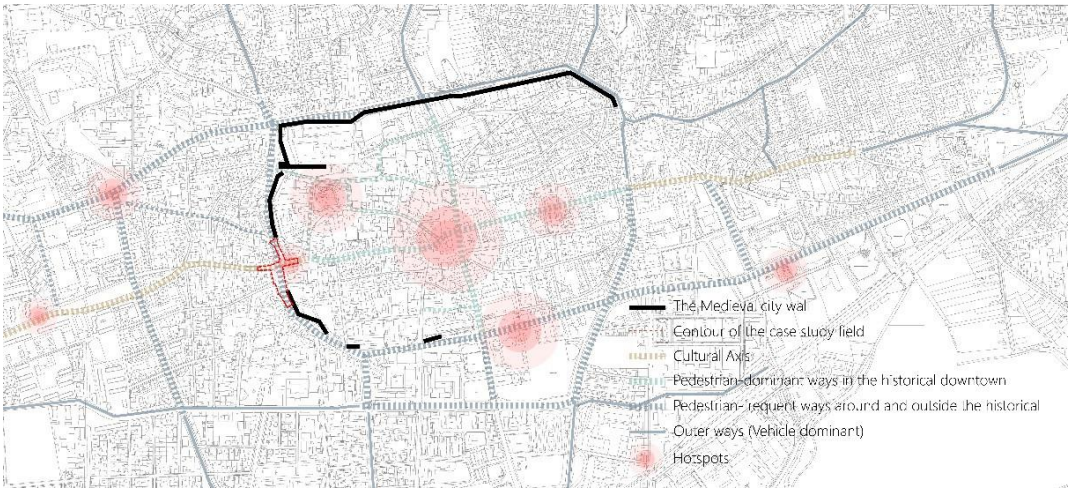

Figure 27. Pécs city medieval walls, illustrated by authors

The research focuses on the Kórház Tér (Hospital Square) (Figure 28) zone and the corresponding intersection and attempts to assess the walkability encompassing the square to present a methodological approach the answer the research questions. Kórház Tér is chosen based on several reasons. The Kórház Tér intersection is located right at the junction of the historical wall ring and at the busy street crossing the city in East-West direction. It is one of the busiest public transportation junctions in Pécs where more than 13 bus lines are interlocking at the bus stop of Kórház tér. Besides public transportation, the four streets intersecting at Kórház Tér have respectively different characters but play a substantial role in the junction and the overall urban street network.

Figure 28. Location of Kórház square, the chosen area, illustrated by authors based on Google Map 2020

First, Rákóczi street is a ring along the medieval wall enclosing the historical downtown; Hungária street is part of the city's East-West axis that leads to the west subcenter. Alkotmány street connects the downtown to three university faculties and residential zones, and Ferencesek street becomes an exclusive pedestrian way after the first hundred meters, it owns abundant pedestrian, historical and

commercial value and potential to become one of the city high streets. Considering the accessibility and connectivity of Kórház Tér in the entire urban context of Pécs, it is the only junction in the city that allows the users to reach all vital destinations by a single bus ride including all University of Pécs faculties - scattered in the city-and all retail clusters in Pécs and city center which has most services, restaurants, cafés and bars.
The research includes both the junction and a part of its connected streets to assure that analysis and result can be accurate and carried in a continuous method.

METHODOLOGY

Regard to Kórház Tér and its adjacent area, the research team developed the methodology to assess the existing pedestrian behavior concerning greenery to enhance walkability. The research consists of field investigation and proposes a way to improve walkability. The field investigation aims to measure the impact of existing street greenery on pedestrian perception and walkability, therefore both qualitative definition and quantitative measures were applied to firstly assess greenery area in accordance to the pedestrian experience in both vertical and horizontal dimensions; and subsequently, assess the pedestrian behavior and sidewalk connectivity at the Kórház Tér intersection, where the geological position and size of greenery were taken into account. With the result of field investigation, restrictions and limits analysis, an optimized version of the intersection was created followed by a final comparison that measures the enhancement.

Existing greenery assessment

The horizontal and vertical analysis of the local greenery and pedestrian perception is defined as follows:
The horizontal greenery evaluation based on the aerial view plan perspective. The floorplan base map produced by combining an as-built official digital plan of Pécs city from the local government authority conducted in 2014 and on-site investigation. With the corrected base map, greenery positions, sizes and types incorporated into the floorplan through on-site measurement.
The on-site exploration provided mapping data and generated the existing greenery classification criteria based on the typology of the local vegetations and human perceptions. Based on the current greenery classification, each type of greenery was calculated on the floor plan and displayed in quantitative numbers. The results sorted into a table for further comparison.
The vertical assessment of greenery evaluated on the elevation view and perspective view of pedestrian walking through the square. The perspective approach is suitable for the greenery assessment in narrow lanes or streets[9]. However, the situation at Kórház tér intersection favors the elevation analysis approach. One of the characters of Kórház tér is that the west pedestrian way of Rákóczi street is 20-meters wide, which lead to a wide range of perspective views depending on the pedestrian's standing position. In this case, the perspective approach cannot provide a valid and clear assessment; the result conducted through elevation approach is more reliable and evident. Therefore, the vertical part of the greenery assessment based on street elevations was implemented at the human-eye level.
Elevations are produced by on-site photo documentation with gauge levelling to achieve an accurate human eye level perception and the minimum perspective tilt angle. The full street elevations of each side of the four streets were composed using Photoshop software, greenery silhouette can be traced and classified to different categories aligned with the horizontal assessment. Relative area data is calculated using the analysis tool embedded in photoshop and the area data can be used to calculate the ratio of each type of greenery to both 'the total greenery of the particular elevation' and 'the gross area of elevation perception.

Pedestrian behavior assessment

The pedestrian behavior data gathered from on-site exploration and photo documentation done on multiple days during daytime at all seasons tracking pedestrians at pre-peak, morning peak, evening peak hours. Later multiple positions of pedestrians and cyclists were assigned to the study zone of Kórház tér along with their predicted movement and stationary standing time. A map was created which track local pedestrian preferred route and a set of illustrations that describe a series of pedestrians' positions on the various sections of sidewalks.

Connectivity assessment

Connectivity assessment was carried out using DepthmapX. The evaluation uses an AutoCAD drawing of the pedestrian sidewalks in Kórház tér that include the crossways and all greenery within pedestrian sidewalks. The analysis aims to find the least used areas of those sidewalks, to study the possibility of enhancing the greenery within the intersection. The measures are based on preparing shortest paths from each node created along the pedestrians' sidewalks, through the visibility graph, to all other nodes.

Classification of greenery

Kórház tér intersection existing greenery is classified into five main categories according to the greenery volume and heights: trees, bushes, pots, wall cover greenery, ground cover greenery (Figure 29) the majority of trees existing in the Kórház tér are Acer, Ash and Platanus. It was noted that two aged pine trees exist in the middle of a sidewalk in free-standing position as part of the heritage protection practice.

Figure 29.Classification of greenery in Kórház tér, photographs taken by authors, table illustrated by authors

Assessment of existing horizontal greenery

The horizontal assessment intends to define the position and quantity of existing greenery. Data due to different categories this analysis can show the percentage of each type in relation to overall greenery in the site. The existing greeneries are plotted separately into the base map in accordance with the classified groups (Figure 30). From the maps, each type of greenery was quantified, and the area was calculated. The maps and areas show that above the eye level, trees were located in different locations of the sidewalk covering an area of 1031 square meters of the sidewalk, while below the eye level, bushes and ground-cover greenery together own over 456.6 square meters and are mostly located behind the

stationary waiting zone, and pots and wall-cover greenery together cover an area of 35.4 square meters from the top view.

Figure 30. Complete map of greenery seen on the streets and in relation to street type, illustrated by authors

The horizontal area data were composited to produce the ratio data for further qualitative and quantitative analysis. The ratio data consists of each type of greenery on top view compared to the gross sidewalk area, each type of greenery area by the total greenery area and each type of greenery area on the ground surface by the gross sidewalk area (Table 8) Ground greenery and bushes have almost the same proportion in the horizontal area, and together they occupy 79.6% of total greenery, and both types are below the eye level.

Type of Greenery	Area of greenery on top view	Area of greenery on ground floor	Greenery top view/ Sidewalk	Greenery type / total greenery area	Greenery ground/ Sidewalk
	m2	m2	%	%	%
Tree	1071.83	96.58	21.68%	18.25%	1.95%
Pot	11.40	11.40	0.23%	2.15%	0.23%
Bush	250.88	215.59	5.08%	40.73%	4.36%
Wall creeper	26.49	0.00	0.54%	0.00%	0.00%
Ground greenery	205.72	205.72	4.16%	38.87%	4.16%

Table 8.Existing greenery types ratio

Assessment of existing vertical greenery

Producing the elevation views

The vertical assessment intends to define the categories that are visible on elevation view and their respective quantity. To align with the core research concept, which analyses in term of the human perception, the street elevation views were conducted from digital photographs instead of elevation drawings. The digital representation of each elevation was taken along the pedestrian paths on the

opposite side of the street, and the digital levelling gauge embedded in the camera ensured the unified eye level -1.7 meters high from pedestrian pavement level-. Sony RX 100 III camera was used to record digital photographs. After the filter of valid (clear in resolution, images cover each segment of each elevation, dense enough to avoid strong perspectives, no greenery from opposite side breaks in) photographs, the merge process was done in Adobe Photoshop CC 2019 with the help of the 'stack' script, and when the coding script is not applicable, the images where manually tweaked.
The spatial relation between the human eye level and the position of the existing greeneries is clear as well from the conducted elevation diagrams (Figure 31). Due to the on-street parking and the narrow sidewalks at Hungária street and Ferencesek street that is currently not applicable for the local scenario of street greenery. Currently these segments of the city streets have no greenery.

Figure 31. Street elevation greenery relative area, illustrated by authors

Further quantitative assessment was produced to achieve the exact ratios among the greenery and the gross elevation. With the help of the analysis tool embedded in Adobe Photoshop CC 2019, the area of each type of greenery and the gross elevation (coloured in black) can be calculated in relatively based on the software unit (Figure 32). The data cannot represent the actual quantity. The street elevations on Hungária street and Ferencesek street were excluded from the calculation because they lack any street greenery.
From the vertical point of view, it is concluded that the assessed segments at Alkotmány street (with 2.3% greenery coverage on each side), Hungária street and Ferencesek street (with 0% greenery) are short in greenery coverage compared to the situations along Rákóczi street (32.9% and 41.9%). Parallelly, there is potential for adding greenery diversity to improve the pedestrian experience.

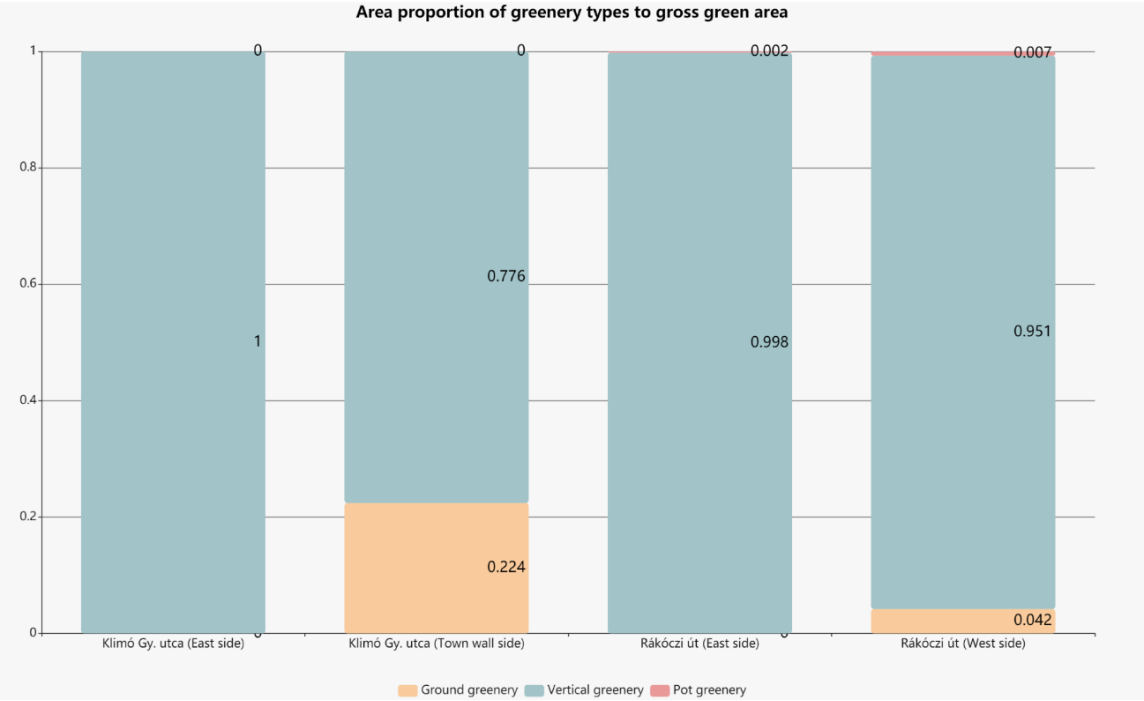

Figure 32. Area proportion of greenery types to gross green area, illustrated by authors

The pedestrian behaviour study explains how people use pedestrian pathways. Local pedestrians tend to move on the inner side of a sidewalk to avoid traffics while in summer times pedestrians tend to move along the southern side of the sidewalk for a shaded area, but when the street greenery is wide enough to block the sight, pedestrians walk near the outer edge, and cyclists' and joggers are using it in the exact opposite way. Parallelly, local pedestrians are desire street greenery that many individuals walk on the part of the sidewalk closer to greenery rather than the drive lane or the buildings (Figure 33).

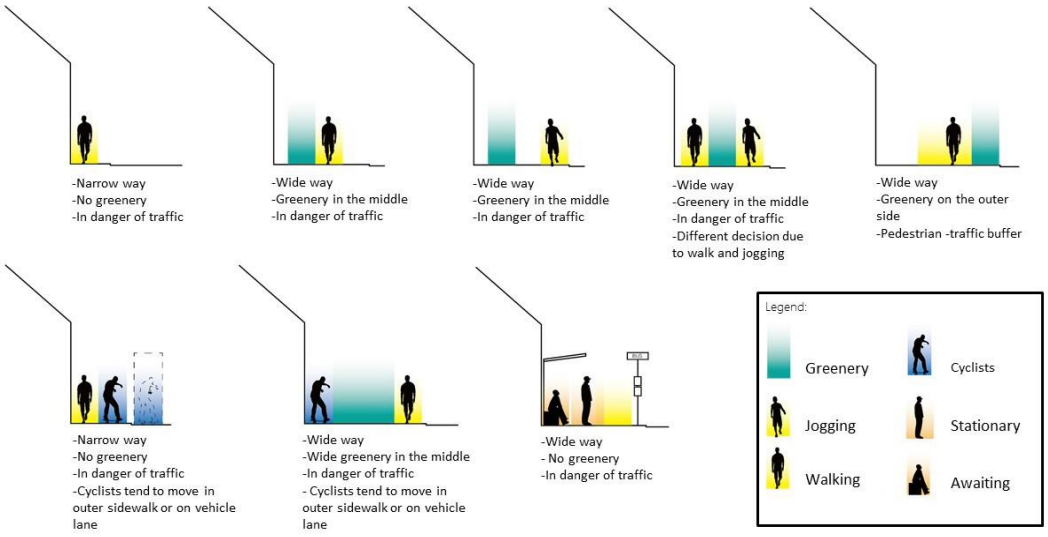

Figure 33. Kórház tér pedestrian behaviour, illustrated by authors

The proposed greenery enhancement was expected to solve the problems exposed by the assessments with the consideration of the local pedestrian behaviour and the basic connectivity analysis. the research found there are many problems in the site; lack of greenery at particular segments, lack of greenery form diversity, low rate of greenery below eye level, lack of buffer zone between pedestrian and vehicle traffic, and weak pedestrian and vehicle visual safety, height control of greenery.
Substantially, the buffer zone between car lanes and the pedestrian way is needed in many areas, bushes can be a good solution granting visual safety. Same visual safety is also needed in the zone with existing grids of trees. Vegetation below eye level can cooperate with a few street furniture to enhance the interaction between pedestrian and built environment and meantime increase safety.

RESULTS

The proposed greenery is explained in horizontal and vertical aspects; considering the assessed parameters, the proposed greenery enhancement map presents the enhancement from a horizontal point of view. Practically, the largest area of enhancement that can be seen from the plan is ground greenery, in other words, a mixture of grass and flowers cooperates with street furniture; a narrow buffer zone created by bushes are placed to the edges where there's no dispute with vehicles. Few pot greeneries are proposed where continuous greenery is not applicable; a few trees are proposed in the south part of the intersection to provide shading and a friendly interaction; a bike lane is added to distribute the load of the pedestrian way on the east side of Rákóczi street which enhances the safety of the pedestrian (Figure 34).

Figure 34. Enhanced greenery plan of Kórház tér, illustrated by authors

New area calculations have been made to present the quantitative differences due to the proposal from the horizontal point of view (Table 9). The greenery on human eye- level was increased almost 4 times than the existing, in which pots increased by 70% and trees by 12% of existing greenery. The area of

greenery on the ground is enhanced to reached 39% of total sidewalk area, while the existing percentage was 10%.

Type of Greenery	Area of greenery on top view	Area of greenery on ground floor	Greenery top view/ Sidewalk	Greenery type / total greenery area	Greenery ground/ Sidewalk
	m2	m2	%	%	%
Tree	1147.4193	108.34	21.07	35.51	1.99
Pot	19.4015	19.4015	0.36	0.60	0.36
Bush	1057.7302	1022.4467	19.42	32.73	18.77
Wall creeper	26.4887	0	0.49	0.82	0.00
Ground Greenery	980.254	980.254	18.00	30.34	18.00

Table 9. Enhanced greenery types ratio

From the vertical assessment point of view, the proposed greeneries were plotted to the elevation images with the size of their average size considering the existing local situation (Figure 35). The proportion of greenery below eye level increased and the overall proportion of greenery received a slight increase from elevation point of view. The diversity of greenery, especially on the east elevation of Rákóczi street, was improved, and it is where the most significant enhancement takes place. The charts also convey that 30% of the sidewalk was not in the efficient use and could play a great role in enhancing local walkability without affecting the inherent pedestrian behaviour.

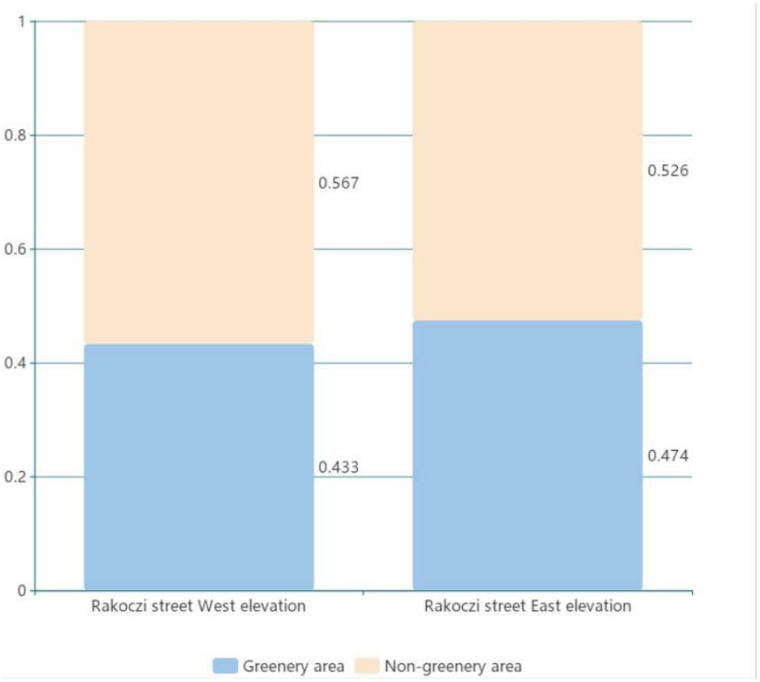

Figure 35. Enhanced area proportion of greenery types to gross green area, illustrated by authors

CONCLUSION

The city of Pécs in Hungary hosts typical characters of a middle Europe township. Therefore, the methodology applied to the Kórház tér intersection can be generalized to similar case studies under walkability related street greenery assessments.

Human perception should be the core of walkability evaluation. Human perception must be considered when it comes to identifying methodology and making decisions about greenery design.

Regarding the Kórház tér intersection, it is clear that trees play a substantial role in creating a general sense of greenery at both Alkotmány and Rákóczi segment. There is a lack of greenery design at Hungária segment and Ferencesek segment, while the narrow sidewalks were the obstacle to the addition of greenery. Further assessment and more creative solutions are required.

Greenery is one of the parameters influencing walkability, vehicle lane, parking space, function interaction, connectivity, safety, bike lane, façade boundary and shape need to be considered in future research to provide a comprehensive understanding of walkability. Walkability research and development contribute to the quality of urban living and expected to bring back vitality to local inhabitants and raise the embodied value of Pécs from the aspect of an interactive urban environment[10].

NOTES

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THE HYPER-REAL IMAGES OF THE CITY AND CONTEMPORARY HOTEL DESIGN

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INTRODUCTION

Hotels can be viewed as assemblies of complicated relationships. As buildings, they have a strong articulated sense of exterior and interior space, but as dwellings, they serve the circulatory city, tourists and visitors and often function as temporary domestic or business spaces. As such, they are organisations serving both consumption and service functions. To keep up with consumers' demands, hotels must appeal to users' tastes and sense of status by offering avant-garde spaces and undertaking frequent refreshments. These refurbishments reflect contemporary trends in consumer marketing, distinction and branding. Chain hotels often bear no relationship to their surroundings. Instead, they impose a set of cultural assumptions on their hotel designs in all countries, offering similar experiences globally. Unsurprisingly, consumers are seeking alternatives to more traditional accommodations through design, uniqueness, experience and personal service. In response, chain hotels are now beginning to rebrand themselves by moving away from 'one size fits all' models. Critics of chain hotels fear that the image of the hotel has become the new reality and push designers to go beyond creating superficial worlds of styles, design trends and conceptual strategies and instead to demand spaces that offer authentic and 'real' experiences. This paper examines the contemporary ethical and social questions arising from the relationship between hyperreality and spectacle in contemporary hotel design, discussing theories by Jean Baudrillard on hyperreality, Guy Debord on the notion of spectacle and Fredric Jameson and his critique of the Bonaventura Hotel in Los Angeles. Each theorist draws attention to the disconnect between hotel spaces and the everyday practices and meanings of people and highlights how they deal, instead, in systems of images and signs that have a life of their own. Often, they constitute 'the real' in new forms of inequalities. This disconnection is further highlighted and discussed using a case study undertaken by final-year interior design students in 2019.

Locating the Theory

'Hyperreality', in this paper, refers to a domain of the real marked by the absence of origin or reality. The term also refers to observations that can be made concerning design and society at large, wherein image has become the new reality. This observation is particularly relevant in the designs of hotels, large shopping malls and other entertainment spaces, where images do not necessarily refer to anything, but instead become a new reality with often-unrecognised consequences for social life. To examine this deeper, the paper examines three main theories: Jean Baudrillard and his theory on simulations; Guy Debord and his claim that life as it presents itself can be seen as an accumulation of spectacles; and

Fredric Jameson and his critique on the Bonaventure Hotel in Los Angeles, which presents itself as a total space and complete world.

Our understanding of reality is increasingly conditioned by a fascination and fixation with the mythologies of the entertainment industry. We look for experiences in the real world that correspond to the illusions created by the television, film and advertisements. Alan Bryman identified this media manipulation of fantasy and perception as an economically driven process he calls 'Disneyfication', a transformation of society to resemble the Walt Disney Parks and Resorts, based upon rapid Western-style globalisation and consumerist lifestyles.[1] Otto Riewoldt states that this Disneyfication of 'the saturation of our senses with prefabricated images of what is desirable and pleasurable is progressing apace: leisure is becoming synonymous with entertainment, and entertainment value is the key to consumer behavior. It's all about turning life into a theme park'. [2] Riewoldt sees danger in simply accepting the status quo at face value. He believes that we need to be able to identify the assumptions embedded in current practices in hotel design and to understand fully the consequences they have for the social world.[3] The role design plays in hotel design can, therefore, be understood as a contributor to a profound problem in contemporary society.

French writer Michel Houellebecq sums up the situation as contemporary architecture taking on 'a simple agenda of building the shelves of societies supermarkets.[4] According to Houellebecq, if modern architecture is no longer called upon to build places to live in, then it will emerge to see itself as an inventor of environments for passers-by, visitors and travellers, and of consumer actions. In his view, leaving things as they appear is fatal for society's quality of life. He believes that the unconditional acceptance of what we see without questioning will have negative consequences.[5] Jean Baudrillard, who coined the term 'hyperreality', adds an interesting observation to the discussion of the image. In his works on simulation, he discusses a break from the idea of images that are knowingly and explicitly representations of something to images that instead leave a reference of that something far behind and participate in a world of their own, followed by images that then determine the choices we make and what, in fact, we consider to be 'normal'.[6]

Debord agrees and states that, 'in societies where modern conditions of production prevail, all of life presents itself as an immense accumulation of spectacles. Everything that was directly lived, has moved away into a representation'. [7] Both Baudrillard's and Debord's works look at the problems with consumer culture of late capitalism, and there are distinct similarities with the idea of the hyperreal. It is an emphasis on the image, which now takes on a life of its own, independent of who has produced it and what it refers to. Debord then points to the consequences of the spectacle for society, because, through the dissemination of images, we are shifting what we consider to be normal. In modern capitalist societies, the world is increasingly seen by means of various specialised mediations, rather than grasped directly. In this way, the spectacle, rather than being a matter of mass dissemination of images, becomes an actual worldview. Now, when we think of the world, we think of it in terms of images that have already been given to us.

When combining the notions of Baudrillard and Debord, whether they use the term 'simulacrum' or 'spectacle', we can observe a common reading of the manifestation of political phenomena under contemporary conditions as an essentially spectacular event itself. In fact, they view political or historical life as being essentially separate from everyday experiences; this is, increasingly and ubiquitously, the side of alienation in its original Marxist sense.

How do these theories by Debord and Baudrillard inform design and architecture, and hotel design in particular? Interestingly, it is through the sense of alienation that separates us from everyday personal experiences of images that we are subjected to and the capacity to control them and evaluate them. This

estrangement from authentic life, the alienation from real life, gives cause to what Marx refers to as 'commodity fetishism'. In hotel design, and especially for chain hotels, the buildings lack any relationship to their location; they seem to be dislodged from their origins and meanings. In this way, they come to constitute a world in their own right, a world of values and aspirations. Perhaps we might revisit Baudrillard and his notion of the hyperreal and realise that his theory is just a progression of fetishism. Baudrillard was the first to treat fetishism as a sign of social value. The fetish object is taken to stand for the owners' social status, nothing else. Here, a fetish is no longer an unreal object believed to have properties it does not really have, but rather it is a means of mediating social value through material culture. These ideas of Debord and Baudrillard are implicit in Fredric Jameson's reported experience of the Bonaventure Hotel in Los Angeles.

A Critique of the Bonaventure Hotel, Los Angeles

The Bonaventure Hotel in Los Angeles, completed in 1967 by architect John Portman, features prominently in *Postmodernism, or the Cultural Logic of Late Capitalism*, a 1991 book by political philosopher Fredric Jameson. Even more than most postmodern hotels, it seems to exist within its own self-contained world, a quality that both separates it from the physical city and connects it to an influential line of standoffish Los Angeles architecture. [8] Jameson's commentary on the Bonaventure Hotel can be summarised in the following:

I believe that with a certain number of other characteristic postmodern buildings, such as the Bourbourg in Paris or the Eaton Centre in Toronto, the Bonaventure aspires to be a total space, a complete world, a kind of miniature city. This new total space, meanwhile, corresponds a new collective practice, a new mode in which individuals move and congregate. Something like the practice of a new and historically original hyper-crowd.[9]

Again, we can make connections to Marx's notion of commodity fetishism and the fetishism of signs in Baudrillard. What we have in the space of the Bonaventure Hotel is a deliberate non-reference to any of the representations that are within the hotel. But how are we to understand this world once we go inside it? What does it refer to? Perhaps unsurprisingly, it does not necessarily refer to anything that we find familiar, thus we have to treat it as a new kind of world and a world which makes no reference to the outside world. Ed Soja refers to the Bonaventure as a landscape, one that is highly fragmented.[10] 'It's a space that decenters you, makes you feel lost. In this feeling of being lost and dislocated, you feel that your only recourse is to submit to authority. In the absence of any bearings, of any meaning making of your own, you're helpless, you're made helpless. Your peripheral eyes, you're lost in these spaces.'[11] For designers of spaces such as the Bonaventure Hotel, it is important to learn from the theories of Baudrillard, Debord and Jameson and to ask questions of contemporary hotel design by drawing attention to the disconnect between these spaces and people's everyday practices and meanings. These are places that have exposed themselves, instead, as dealing in systems of images and signs that have a life of their own. They are alienated from the world from which they came, and they have come to constitute the real, often smuggling in new forms of inequality.

Figure 1. Bonaventure Hotel Los Angeles, interior view

Applying the Theory

How can we actually apply the theories discussed in a practical sense, as a meaningful thinking tool for designers? Further, how can we apply them to entertainment spaces, including hotel designs, places where spectacles are designed to obscure the social and political inequalities and contradictions churning beneath spectacular realities where designed images bear no reference to the world in which they are embedded and therefore obscuring any inequalities? A hotel design project for final-year interior design students prompted a summary of the theories of Baudrillard, Jameson and Debord. The students made three critical observations:

1. Spectacles are designed to obscure the social and political inequalities and contradictions churning beneath spectacular reading claims, including the material conditions of the global political economy.
2. Baudrillard's extension of the spectacle as simulacrum challenges us to rethink the idea of stable organisational reality all together, highlighting the myriad ways in which the spectacle-simulacrum becomes constitutive of the precarious social order of a given moment.[12]
3. Spectacles constitute actors, spaces and relationships in ways that may not always be intended or controllable. This propels organisations into new territories and conversations, for instance, because representations do not just hide material inequalities, but are themselves producers of new ones.[13]

These theories form the basis of asking questions about contemporary hotel design, drawing attention to the disconnect and the everyday practices and meanings of people and how they deal with systems of images and signs that have a life of their own and come to constitute 'the real', often suggesting new forms of inequality in the process. The benchmark of the critique is to identify the relationships that should be supported, encouraged and sustained, thereby resisting the tendency to create a domain of the real that takes no account of those relationships. Then, this can be examined by viewing the designed space as a script or intention inscribed in the design. Such an approach will ask designers to move

constantly between designer and user, between the designer's imagined user and the real and represented users and, further, between intention and interpretation—between what is written into an artifact's inscription and how it is read and understood. This, in turn, incites us to read the script that is already in the hotels. In other words, describing a design is also describing the script that has been embedded within it and to imagine a new script or re-inscript and to imagine also the user and any consequences for that user. In this way, the theories of Baudrillard, Jameson and Debord become quite practical.

Figure 2. An example of a hyperreal space -Venetian Hotel Las Vegas, canal and gondola

THE PIXEL HOTEL - A STUDENT PROJECT

The Pixel Hotel was a final-year project for interior and spatial design students of Griffith University in 2019. The brief required students to critique a current hotel design using the theories of Baudrillard, Debord and Jameson and to respond with a spatial design proposal that engages with the notions of locality, place, culture and time, providing guests with a unique local experience in reactivated void spaces. The project aimed to offer guests and visitors to Brisbane and the Gold Coast a unique experience related to local history, culture, places, food and experiences. The project was inspired by a case study in a 2009 pilot project completed in Linz, Austria by the local architectural firm AORTA, who coined the name *Pixel Hotel*. They provided students with background information on a successful, proven alternative to guest accommodations. Similar to the concept behind Airbnb, AORTA turned the entire city of Linz into a hotel. The individual 'pixels' (guest rooms) are dispersed throughout the city, forging new relationships between the hotel and the city. [14] The concept encouraged guests to explore their pixels' neighbourhoods and to dine in local restaurants and cafes, all of which are parts of the experience offered by the Pixel Hotel. Upon arrival in Linz, guests receive a key and city map with directions to their pixel, breakfast vouchers for a neighbourhood café, public transport tickets and information on the city's activities.[15] Berger explains that the pixel idea removes the hotel room from the mediating generic spaces of the conventional hotel—lobby, corridors, breakfast buffet, hotel bar, etc—and instead places the hotel room directly amid the life of the city.[16]

Figure 3. Pixel Hotel Linz, Marienstrasse

A final Brisbane/Gold Coast Pixel Hotel project critique generated positive and supportive responses from invited industry partners. The project was specifically designed to open debate and discussion on the futures of hotel design at a time when Southeast Queensland was experiencing high growth underpinned by affordable housing prices, strong interstate migration, solid population growth, infrastructure and tourism. Tourism Investment reported in 2019 that Queensland was the most active hotel investment market in Australia, with a projected growth of a 4.1 percent for Brisbane and 7.5 percent for the Gold Coast.[17]

Figure 4. Student Concept, a 'pixel' on the Gold Coast

CONCLUSION

Design is always about change. This was also true for the emergence of chain hotels in the 1950s. At that time, Conrad Hilton proudly announced that his emerging global hotel chain stood for more than the centre of communities; he saw them as a focal point for the exchange of knowledge among millions of people.[18] From a design perspective, these structures stood above ordinary life, but have raised

important issues such as those related to their lack of relationship to their surroundings. As discussed herein, these new and imposing structures not only came to dominate many cities' landscapes, they also brought with them a range of cultural assumptions, such as the idea that guests worldwide would demand the same experiences, the same standardised interiors and the same types of services. Hotels are not just buildings; in fact, the resemble organisations that serve both consumption and service functions. They reflect the complex geographies of city life and provide a microcosm of the occupational hierarchies of hospitality services, which are increasingly organised around a globalised division of labour.

As this paper has made clear, hotels respond to images promulgated in consumer society to express status and taste. As sites of consumption, they are concerned with the transformation of needs into desires, responding to guests' quests for individual pleasures and a sense of hedonism. The focus in these hotels, therefore, is on fetishism, aestheticisation, conspicuous consumption and yet also alienation. The lessons we have learned from the theories of Baudrillard, Debord and Jameson can be used as a set of thinking tools that are valuable for hotel designers. Importantly and crucially, hotel design needs to go beyond the superficial world of styles and trends to realise how powerful images are, as images increasingly become reality. Guests look for authentic experiences that correspond directly to the illusions created by images they have seen in advertisements, on television and in films. Riewoldt believes that the time has come to at least identify the assumptions embedded in current hotel design practices and to fully understand their consequences for the social world.[19] The Linz Pixel Hotel provides an interesting alternative to conventional hotel design by reconnecting places of temporality with a sense of place, offering guests a more authentic experience by tapping into the city's unique local culture.

Some chain hotels are aware of consumers' tastes and are now trying to rebrand themselves into smaller concerns. They are moving away from the 'one size fits all' models and moving to offering more personalised experiences.[20] This raises several questions. If hotel design is at a crossroads, for whom or what will designers be working, and why? Can the contemporary ethical and social questions that arise from relationships of hyperreality and the spectacle, as we have seen in the domination of prefabricated images that are impossible to understand and deem appropriate, be identified? Can new scripts be written in the form of designs that are responsive to these questions?

NOTES

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[13] Ibid, 11.
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[15] Ibid, 6.
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DIVERSITY IN THE DIVERSE CITY: KUALA LUMPUR'S CHINATOWN

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INTRODUCTION

Eyes And Ears Of The Street

One of the core values which modern town planning was meant to achieve, was to identify and act on behalf of a universal "public good" or "public interest"[1]. The Chicago School's early approach to urban sociology viewed the centrality of movement deployed around city growth as analogous to the growth of plants[2]. However, city life involves not just relations of people with one another or with the environment in some generic sense of spatiality or natural resources[3]. Growth, connection/interconnection, networks, circulation, flows, movement, communication are all concepts which resonate with the city as the site of mobility and mobilities[4]. Cities have become sprawling entities and plural universes enmeshed in global processes over which they have little control, exposed to transnational flows of one kind or another[5]. In the context of migration, the term "transnationality" places cities within the synergies and tensions of the mutual construction of the local, national, and global; while also situating migrants and their transnational connectivities fully within the forces that are constitutive of "the urban" [6]. Migrants have been integral yet only intermittently acknowledged contributors to both the past and present of cities and their transnationalities[7].

Urban density was an issue opposed by most urban planners in the early 20th century, although Jacobs begged to differ[8]. Urban density and its enabling of informal and spontaneous social exchanges with diversity was termed by Jacobs as "local knowledge" [9] [10] [11] [12]. Jacobs (1961) [13] [14] viewed diversity as an asset of a desirable city, especially when mingled in mutual interpersonal support[15]. Jacobs uses the modern imagery of the crowded city in order to convey a deep respect for the life of its sidewalks, which entail multiple sets of eyes as well as multiple actors of different socio-economic backgrounds[16]

The notion of the 'sidewalk ballet' portrays the city as a lived, human space rather than a geometrical, abstract space[17].

Jacobs' biggest challenger was Lewis Mumford (1998) [18], an urban planner who advocated the decentralization and de-densification of cities and the spread of the new suburb[19]. Mumford (1970) [20] [21]took a more classical antiquity-based approach to defining the city, referring to the city as "the form and symbol of an integrated social relationship: it is the seat of the temple, the market, the hall of justice, the academy of learning". The city, as one finds it in history, is the point of maximum concentration for the power and culture of a community [22] [23].

LITERATURE REVIEW

Chinatowns As Urban Space

Chinatowns have long experienced a pejorative sense of image due to the stereotyping attached to it by new host countries. Initially functioning as a facilitator of migration by the ethnic Chinese outward of mainland China, Chinatowns were considered to be ethnic enclaves centralising Chinese businesses, culture, and tradition. The regular image assigned to it is a bustling hub of economic and social activity, which includes both the formal and informal businesses. In the words of Jane Jacobs, a city should possess a "sidewalk ballet", a combination of "eyes and ears" which enable the observation and transmission of information regarding its surroundings, to its citizens.

In this essay, I highlight the features of a Chinatown which correspond to these features as outlined by Jacobs. The history of Chinatowns can be traced back to the migration of ethnic Chinese out of Qing Dynasty China (1800s) to various continents. These included notable destinations in need of large-scale labour such as the United States of America, Britain, and Malaya, which was then a British colony[24]. Zhou (1992) [25] documented the experience of recent immigrant Chinese in the United States Chinatown's enclave economy, and how networks of the ethnic community facilitate their social mobility.

Instead of approaching Chinatown as an urban ghetto where poverty and urban diseases prevail, Zhou viewed it as an immigrant enclave with strong socioeconomic potential for channelling immigrant Chinese into mainstream US society. In Portes (1992)'s[26] foreword to Zhou's book, he relates how writings on Chinatown tended to take one of two approaches: the first, portraying Chinatowns as dark recesses of capitalism, where poor newcomers ignorant of the language and their labour rights, are mercilessly exploited by fellow nationals for the ultimate benefit or large concerns in the mainstream economy; the second, assimilating these areas into the broader category of early reception areas for recent immigrants, as 'staging centers' where new arrivals can be protected from cultural shock and provided with the necessary information to navigate their new social surroundings. Portes (1992) [27] observes, however, that while Chinatowns used to be places of refuge in their early years, they have since evolved to become a large ethnic economy of considerable resilience and vigor, not only as residential areas, but as veritable enterprise zones.

Indeed, Chinatowns historically provided 'cradle to grave' services, though this included the transplantation of rural lifestyles into urban settings [28]. This entailed principles of social organisation which were based on descent, locality, and occupation, or clans, surname, dialect, or provenance[29] . In Chinatown, shops of all kinds are marked with signs written in Chinese characters, narrow sidewalks are crowded with vegetable stands and vendor carts, restaurant windows show rows of barbecued ribs and roast chickens and ducklings, and the air is filled with smells of dimsum and other delicacies[30]. Community networks and social capital serve as the major resources for achieving their socio-economic goals[31] .

Lai (1988) [32] classified Chinatowns into 4 groups, namely: 1. Old Chinatowns; 2. New Chinatowns; 3. Replaced Chinatowns, and; 4. Reconstructed Historic Chinatowns.

Type	Characteristics
Old Chinatowns	-Established before WW2 -Is a Chinese residential, institutional, & and commercial inner-city neighbourhood that is physically discernible by its land uses, commercial facades, demographic structures, & socio-economic activities
New Chinatowns	-Established after WW2 -Commercial areas characterised by the concentration of Chinese business concerns along a section of a street or in nearby shopping plazas. -Is not a well-defined residential area, although close to neighbourhoods with a Chinese population
Replaced Chinatown	-A planned Chinatown which replaces an Old Chinatown -Is a Chinese residential, commercial, and institution area -But is an attractive inner-city neighbourhood (unlike old Chinatown)
Reconstructed Historic Chinatown	-Certain bustling Chinese activities are not found here, including highly colourful commercial facades of Chinese business concerns, the activity of many Chinese pedestrians, the odours of Chinese merchandise and food, and the sounds of various Chinese dialects -This Chinatown, however, is an extinct Chinatown restored to its original streetscape and designated as a heritage site

Table 10 - Lai (1988)'s Typology of Chinatowns in the United States[33]

In the US, there are three main categories of Chinese immigrants, which are wealthy entrepreneurs and highly educated professionals; refugees/those who escaped severe poverty or political instability; and undocumented immigrants smuggled through networks of Chinatowns and Southeast Asia [34]. It is the two latter groups who tend to become members of a Chinatown, as the former is more capable of integrating into mainstream American society, while the latter have fewer economic resources and lower levels of education[35].

Previously, Chinatowns suffered from negative stereotypes. Not least was the image of Chinese in Chinatowns which was described as "clannish, unassimilable, xenophobic, and deeply introverted"[36]. In addition, it was seen as an agglomeration of ethnic businesses (including 'illegal' or 'immoral' practices, e.g. drug trafficking, gambling, and prostitution) serving its own 'kind' [37]. Gang crime was also inexorably linked to New York City's Chinatown's political economy and social history[38]. In a way, Chinatown was mutually formed by a combination of a need to facilitate migration, as well as discriminatory policies and racism in new host societies, especially in the later part of the 19th century[39]. Thus, early Chinatowns were essentially products of social exclusion[40].

As of today, however, Chinatown may seem to be a unique ethnic enclave, but it is by no means isolated. It has been shaped by free trade and by American immigration policies that characterize global economic integration[41]. Chinatown's food system provides a model that is culturally and socioeconomically inclusive, supports small business, provides market outlets for small and middle-sized forms that have been marginalised from national and international markets, and supports agricultural practices that crop diversity[42]. Most importantly, Chinese Americans have since been lauded as a "success story" and celebrated as a "model minority", given their remarkable socioeconomic achievements.[43]

THEORETICAL FRAMEWORK

Jacobs' ideal was that diversity was 'by far' the most important condition of a healthy urban place [44] . Urban diversity included the "size, density, and congestion of cities", and was considered by Jacobs to be among "our most precious economic assets"[45]. Jacobs valued the "every day, ordinary performance

in mixing people, forming complex 'pools of use' that would be capable of producing something greater than the sum of their parts[46]. Diversity was not seen as chaotic, but as 'organised complexity' [47]
Thus, there are several physical qualities which conform to Jacobs' diversity ideal, which are mixed primary uses, mixed ages, short blocks, and concentration[48].

RESEARCH QUESTON / OBJECTIVE

How do the features of Kuala Lumpur's Chinatown correspond to the features of urban diversity, as outlined by Jane Jacobs?

METHODOLOGY

My Fundamental Research Grant Scheme (FRGS) project is sponsored by the Ministry of Education of Malaysia, under Grant Number FRGS/1/2018/WAB12/UKM/02/1 (Superdiversity Networks: Cantonese Clan Associations in Malaysia as Transnational Social Support System). The project consisted of ethnographic fieldwork in Petaling Street's Chinatown, combining participant observation which included site visits, photoethnography, interviews, surveys, library research, and content analyses[49] (Chan, 2019). I thus made the following observations.

FINDINGS

Kuala Lumpur's Chinatown - A Brief Overview

Petaling Street is known as Kuala Lumpur's "Chinatown", and is a place of interest to tourists [50]. Kuala Lumpur's "Chinatown" (KLC) is one of the most visited tourist sites in Malaysia due to its local heritage and unique character[51]. KLC is not just a stretch of Petaling Street but covers several streets and alleys, e.g. Jalan Sultan, Jalan Hang Lekir, and along Jalan Hang Kasturi [52] [53] [54]. Petaling Street is one of the earliest roads and one of the seven streets that Kuala Lumpur had before 1880, where Lam (2004) [55] describes it as "the mother of all markets" and "KL's original shopping centre"[56]. Like other "Chinatowns" in the world, KLC has diverse activities and services [57] [58]. The rejuvenation of pre-war buildings as tourist attractions has become a recent trend, especially in Petaling Street, a major historical site in the heart of Malaysia's capital city, Kuala Lumpur[59].

Features	Description	Kuala Lumpur's Chinatown (KLC)
Mixed primary uses	Offices, factories, dwellings etc. were central for serving people that came	Besides the markets, street-markets, food stalls, and shops, wet market, and flea market, there are also old shophouses, offices and hotels and several temples in the KLC area[60] [61]. One of the most famous landmark cases of adaptive re-use in Kuala Lumpur, is the Central Market building, on Jalan Hang Kasturi nearby Petaling Street. Initially a wet market built in 1936, the Central Market was adapted into an arts and crafts marketplace in 1986 after citizens' groups campaigned to save the building through conservation[62] [63] [64]. It is now known as Pasar Seni (Art Market). Generally, most private heritage buildings along Jalan Sultan and KL "Chinatown" have been converted into hotels, cafes, bars, and restaurants to fit the modern needs of locals and tourists[65] [66].
Mixed ages	Mixed building age was essential for this too, by insuring there would be places for new enterprises and entrepreneurs	The stylistics of shophouses have hybrid characteristics, incorporating architectural influences from Western, Chinese, and Malay origins[67] [68]. KLC possesses a stock of pre-war shophouses with differing architectural styles and historical values[69] [70]. The heritage buildings of Petaling Street are influenced by a combination of Western and Chinese architectural styles. In 1894, the British Resident of colonial Malaya, Frank Swettenham initiated the building of masonry shop houses along Petaling Street [71] [72]. However, these shophouses' features were very much influenced by Southern Chinese architecture[73]. European architecture only influenced the later design and development of these shophouses[74] [75] . Certain aspects of the buildings, such as the verandas, were adapted to the local context, giving rise to a new hybrid style known as the "Southern China Eclectic Style"[76] [77].
Short blocks	Necessary for diversity as long blocks funnel people to only a few commercially overdeveloped streets	

Concentration	Sidewalks were important for maintaining diversity, because they helped 'handle' strangers and induced people to watch over them. Small tactics of 'emphasis and suggestion', like provision of visual interruptions in long city streets	The ground floor of shophouses, which faces the street, is for commercial purposes, whereas the rear section and upper floor are for private use[78] [79]. However, the verandas are now occupied by street stalls which park in disarray, causing walkability problems for pedestrians[80] [81]. Besides pre-war shophouses, KLC's back lanes are also of interest to tourists.

Table 11 - Properties of Kuala Lumpur's Chinatown matching Jane Jacobs' features of urban diversity[82]

DISCUSSION AND CONCLUSION

My study found that in Petaling Street, there are two forms of cultural heritage preservation - firstly, the adaptive reuse of historical buildings; and secondly – the continued use of a historical building[83] . The former consists of heritage style hipster cafes and locales; while the latter is manifested in the sustenance of a Chinese clan association, Chan See Shu Yuen Kuala Lumpur and Selangor (CSSYKL)[84]. The former has been rejuvenated to feed a hipster aesthetic as well as to attract tourists from around the world[85]. Meanwhile, CSSYKL is made up not only of tangible cultural heritage through its century-old building, but also organic intangible cultural heritage which is its Cantonese clan association membership and its practices[86].

The features of Kuala Lumpur's Chinatown represents an "Old Chinatown" as described by Lai (1988)[87], and comply with the features of urban diversity as outlined by Jane Jacobs. In terms of mixed primary uses, Kuala Lumpur's Chinatown has managed to contribute to the rejuvenation of old colonial-era buildings, which potentially reduces development cost and represents a vintage-style aesthetic which attracts tourists, due to its picturesque image. Similarly, the mixed ages of buildings combines different architectural influences, enhancing the design of the locales, providing character and ambience to both locals and tourists, reaffirming the appreciation of ethnic and cultural diversity rather than a sterile view of concrete. The short blocks allow people to gather informally, whether they be shop-owners, workers, customers, or sightseers, as a recreational space. The concentration of buildings and the direction in which it focuses the city-dweller's gaze towards the focal point of activity in a concentric way, allows for the "eyes and the ears" phenomenon to develop, preventing complete social isolation among its citizens. Of course, on the converse, all these opportunities for the greater good could also potentially be exploited for other intents.

Nonetheless, these suggest the existence of urban diversity nestled within the diverse city. Thus, it is apparent that the Asian-based community participation approach to cultural heritage preservation functions in two ways - first, the preservation of tangible and intangible forms of cultural heritage for the benefit of clan association members as well as for tourism purposes; and secondly to fulfil market demand[88]. These two co-existing forms of community participation successfully add value to the cultural identity of Kuala Lumpur in the era of super-diversity[89].

In conclusion, the benefits of urban diversity are far-reaching. UNESCO[90] emphasised the importance of people-centered cities, highlighting that culture is key to achieving a quality urban environment by respecting people's identities, thus increasing the livability of cities. In its report on "Culture, Urban Future", UNESCO [91] stressed that culture should be a core component of urban initiatives to facilitate social cohesion and mutual understanding, to counter urban violence and contribute to peace building. As Jacobs envisioned, the sidewalk ballet needs its ensemble to perform its tableau.

ACKNOWLEDGEMENT

This research is supported by the Ministry of Education of Malaysia under Grant Number FRGS/1/2018/WAB12/UKM/02/1 (Superdiversity Networks: Cantonese Clan Associations in Malaysia as Transnational Social Support System). Parts of this research have been presented in conferences.

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THE PUBLIC PERCEPTION OF THE POTENTIAL EFFECTS ON HEATH AND WELL-BEING WHEN CONFRONTED WITH A MAJOR INFRASTRUCTURE DEVELOPMENT AFFECTING THEIR COMMUNITY

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INTRODUCTION

This paper is based upon the authors PhD research, 'Fracking, Sustainability and Human Health – Working Together? The Social Health and Well-being Impacts Associated with Hydraulic Fracturing.' The results, which could have a bearing on many infrastructure projects, reveal an unexpected complexity between what might be considered as an environmental impact and those which might impact upon the health of people and their communities. The research also concluded that the public have a very negative and mistrustful perception of Government, Statutory Bodies and the Oil and Gas Industry, the implications being that authorities and relevant bodies need to pay far more attention to people and community needs when granting and considering planning consent and licences.

In 2014 Hydraulic Fracturing was being viewed as the solution to solve the world's energy crisis as the global population is set to rise to 9 billion by 2050 with the corresponding growing demand for energy resources.[1]

U.K. Government policy was set to explore for onshore oil and gas resources with much of the easily extractable oil and gas reserves already produced from twenty four locations across the United Kingdom (U.K.), some of which are still in production whilst other have been exhausted. With new technologies being developed and used in some oil fields, these factors are driving the desire to explore the possibilities of extracting tight oil and gas – reserves found in shale rock.

In January 2014, the U.K. Government announced they were, 'going all out for shale gas,' to ensure economic growth, secure energy supplies and create job opportunities. This was viewed as a crucial part as the U.K.s transition to the longer-term goal for a low-carbon economy.

Interest was raised as to why the process caused so much public concern and protest and following an initial literature search it was intriguing at the lack of any significant published research concerning possible social impacts of hydraulic fracturing raising the questioning if these might be of equal importance to the environmental concerns?

BACKGROUND LITERATURE SEARCH

As licenses and permits were being granted to allow for the exploration of shale gas this resulted in significant protests concerning environmental issues. A review of the literature indicated two main factors, firstly that there was very limited literature in relation to hydraulic fracturing and people's health

and secondly, much of this literature was produced from within the United States of America (USA). Furthermore, much of the literature available was focused on the detrimental effects on the environment rather than those who lived or worked in either proposed hydraulic fracturing areas or where extraction was already underway.

HYDRAULIC FRACTURING

The extraction of shale gas (often referred to as 'unconventional gas') uses the process known as, 'Hydraulic Fracturing' often shortened to, 'fracking.' Whilst new to the United Kingdom, the United States has employed the process since the 1940's.

Briefly, the process uses large quantities of pressurised water mixed with sand and chemicals which are injected into the gas or oil-bearing rock, thus causing it to fracture and allow the gas/oil to flow freely to the surface. New technology allows for previously inaccessible reservoirs of gas/oil to be extracted using horizontal drilling techniques, thus, such reserves can be extracted from beneath former protected areas of countryside such as National Parks, giving rise to concern of possible water course contamination and other environmental damage.

Oil and Gas companies exploring for shale gas in the U.K., will be expected to submit an Environmental Impact Assessment (EIA) as part of the planning application process. EIAs do not specifically include human health components and certainly not the Social Health and Well-Being Impacts. The pre-research evidence available in the media presents a confusing case, depending upon the politics of those involved with horror stories emanating in the United States.

THE CONCEPT OF SOCIAL HEALTH AND WELL-BEING

Understanding the above concept is crucial to understanding the importance of their exclusion.

Historically the environment has had a much stronger and visible presence, starting from the 1960's with the publication of Rachel Carson's book, 'Silent Spring,' which described the devastating effects of pesticides and the damage to the environment. A catalogue of man-made environmental disasters followed, 'The Love Canal'(1970's) and the Aberfan disaster, (1966) are just two examples. What these examples highlighted was communities knowing and understanding their environment and a lack of acknowledgement or engagement from relevant governing bodies and organisations.

Following the Aberfan disaster, new legislation was passed in the United Kingdom and enacted, including the Health and Safety at Work Act, 1974.

Environmental Impact Assessment (EIA) became legal and statutory in the 1980s through the EU Environmental Impact Assessment Directive (85/337/EEC), designed to ensure a consistent approach to protecting the environment.[2] Not so for human health which is a criterion within EIA but initially focused on humans as a receptor. The amended EIA Directive, 2017, now includes, population and human health are topics for consideration within an EIA.

Under this Directive, EIAs are expected to be submitted as part of the planning application process prior to the inception of defined projects which are likely to have environmental impacts, but there is no such provision for any likely human impacts which could be identified using Health Impact Assessment (HIA). Health Impact Assessment (HIA) is defined as: *'A combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population.'*[3]

The development of HIA sits broadly under the Public Health umbrella. Public Health is described by Acheson as, *"The art and science of preventing disease, prolonging life and promoting health through*

the organized efforts of society."[4]. HIA was primarily developed as the tool in order to improve health and reduce health inequalities within the arena of the Built Environment.

THE SOCIAL DETERMINANTS OF HEALTH

The Industrial Revolution saw one of the biggest social health movements. As the Industrial movement progressed at a rapid pace, town and cities infrastructure was unable to match the pace and with a severe housing shortage and over crowdedness, insanitary conditions emerged, which in turn encouraged the rapid spread of diseases.

In 1844 the Health of Towns Association was established which put pressure on the then Government to improve the health of the public. Many were of the belief that as people became unwell and too ill to work, they in turn, 'couldn't generate wealth or perform military duties.' [5] As such, policies were developed to protect the public.

The Social Determinants of Health (abridged to Social Health and Well-being) underpins HIA and these have their own history and development and are defined as: "*The social determinants of health (SDH) are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies and political systems."*[6]

The Social Model of Health was developed in 1991 by Dalhgren and Whitehead, as a conceptual framework which aims to improve the health and well-being of the population by addressing the economic, social and environmental determinants of health. [7] Essentially, the framework creates a layered approach and builds outwards, it is often referred to as the 'Rainbow.' It is an illustrative diagram broken down by layers that show the influence on health. Each layer indicates sectors of influence, which can be either within, or outside a person's control. These layers move between cultural and environmental conditions, living and working conditions, social and community networks, individual lifestyle factors and family, the most inner layer, represents factors of age, sex and genetics over which people may have little influence but can play a significant part in a person's life and well-being.

RESEARCH METHODOLOGY

A questionnaire consisting of 10 questions some with multichoice options or asking for comments was developed, piloted and then posted for a six-week period on the Bristol On-Line Survey which was chosen as it was already under licence to Liverpool John Moores University.

The research design used the mixed methods approach collecting both qualitative and quantitative data. The questionnaire was designed to capture an appropriate dataset without prejudice of bias wherever possible. Using this self-administered on-line approach up-loaded onto three unbiased e-platforms enabled a snapshot of how a population perceives the proposed introduction of hydraulic fracturing into the U.K. The questionnaire ran for a six-week period as it was a one-off, time limited sample, in which respondents were anonymous. Consequentially neither longitudinal studies nor forecasting was possible.

ANALYSIS

The responses were analysed manually to identify the emerging themes and NVivo Pro was used to verify this manual analysis for its robustness, which it validated. A synonym table was developed as patterns emerged to ensure full capture of different words used to describe similar feelings and frames of mind of the respondents.

The text data analysis was used to produce a 'Rich Picture,' which identified the main Outcomes and Drivers and were then incorporated into an Interrelationship Digraph (IRD). The Casual Loop Diagram (CDL) was then developed using Vensim software to build an understanding of the relationships

between the key emerging themes. A CLD is described as *'A causal loop diagram (CLD) is a qualitative method for visualizing how different variables in a system are interrelated and how they influence each other to create system dynamics. This approach is used to build a simplified model of the factors and dynamics that influence a phenomenon of interest.'*[8]

The purpose of developing the CLD was to support the understanding of the key variables identified and linking them together, where possible and shows a broad picture of emerging causes and effects. The key Drivers, the issues with the most arrows going out are seen as the cause/s and conversely Outcomes are those seen with the most arrows going in and are the areas most noted for concern.

RESULTS

The questionnaire yielded 94 completed questionnaires with over seven hundred comments and observations from the respondents. Of socio-economic data collected from the respondents, 59% were female, 41% were male with the age distribution of the respondents showing a full age range of under 18 to 75+. The ranges with the highest participation were 55 – 65 (*n*=24), 46 – 55 (*n*=22) and 36 – 45 (*n*=16). The geographical locations of those completing the questionnaire indicate all U.K. respondents lived within a shale basin. Seven respondents lived overseas, 2 in Europe, 3 in Australia and 1 each in the United States and Canada.

Questions 1 and 2 were asked to establish the level of knowledge of the respondents. Question 1 asked, 'Have you heard about hydraulic fracturing?' Of the 92 responses 98.9% said they had. Question 2 asked, 'Are you familiar with the hydraulic fracturing process?' Of the 91 responses to this question 33% replied that they were.

Responses to Question 3 indicate an unexpectedly strong overall mistrust of Government, industry, and Regulatory Bodies. Question 3: asked, 'Do you feel you can trust any formal consultation process?' Of the 66 responses to this question 66% said that they did not. Question 3 also asked, 'Please state why you do OR don't trust any formal consultation process?' There were 58 responses to this question with some respondents identifying more than one reason for their distrust as shown in Figure 1 which describes the various levels of distrust and the scepticism of any formal consultations attended by respondents.

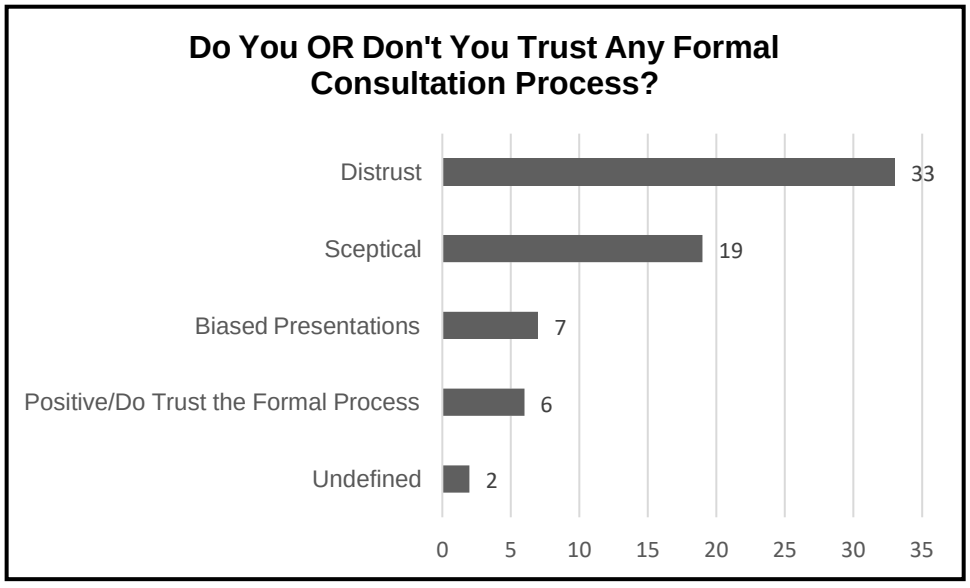

Figure 1

As this study revealed a number of variables, only the relevant ones pertinent to the results section will be presented and discussed. Overall, three key themes emerged from the data analysis:

Theme 1 Concerns the Social Determinates of Health.

The predominant and most mentioned concerns by the respondents, were, stress, anxiety, worry, fear and loss of control and their potential to cause ill-health. Concern was also raised about the possible environmental impacts such as, air and water pollution, increased traffic and potential seismic activity upon communities, which in itself added to the fear and worry. The mistrust and lack of transparency from the organisations involved with hydraulic fracturing highlighted by the respondents also added to the overall anxiety concerning the process. In general, the respondent's responses were negative with very few positives being articulated.

Theme 2 Issues with the Environment.

Common concerns of traffic noise, air and water pollution were stated by respondents along with potential health and well-being impacts including, cardiovascular, neurological, asthma, skin problems, birth defects and mental health problems associated with disruption to their local environment.

Theme 3 Relates to the Mistrust of Government, Regulatory Bodies and the Oil and Gas Industry.

There was an overarching theme where respondents do not trust the formal process which appears to be creating high levels of distrust and scepticism concerning the Government, regulatory bodies and the industry itself.

The aim of the research was to, '*To determine the public perception of the social health and well-being impacts associated with Hydraulic Fracturing.*' Questions 6 and 7 dealt specifically with health, feelings and opinions. Question 6. Health is defined in a broad, non-medical way by the World Health Organisation (1948) as, *'a state of complete physical, mental and social well-being and not merely the absence of disease.'* Considering the above definition, what do you think, see or feel that the Social Health Impacts on Communities and individuals might be from Hydraulic Fracturing? Number of respondents answering this question *n=89*.

Question 7. Do you have any concerns/issues if Hydraulic Fracturing goes ahead near you? *n=91*.

Figure 2 below shows the respondents differences in responses to Questions 6 and 7 when presented with a hypothetical scenario of hydraulic fracturing happening, 'in your backyard,'

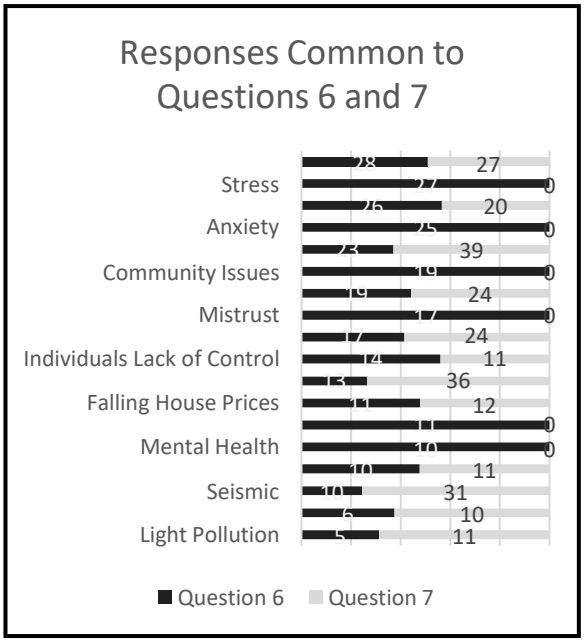

Figure 2

The Causal Loop Diagram (CLD) in Figure 3 illustrates the complex interrelationships between the impacts upon the environment and social health and well-being.

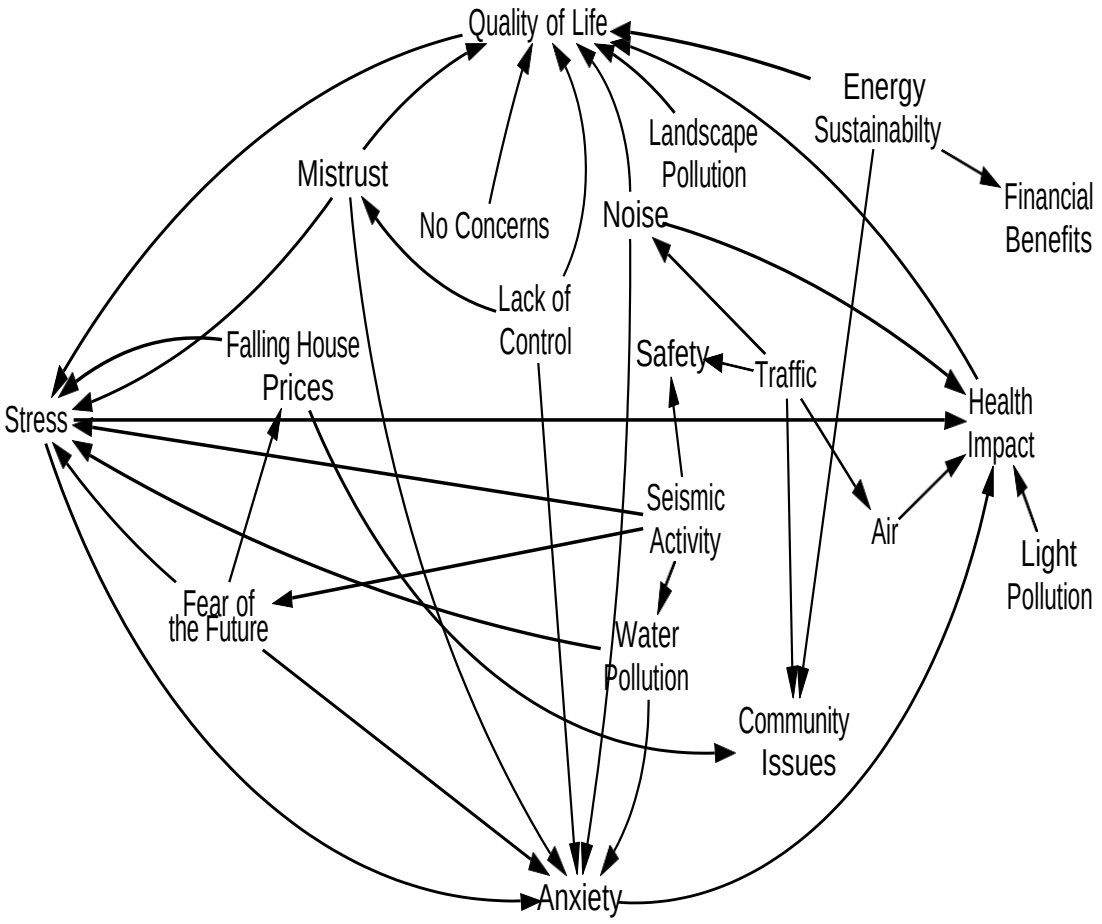

Figure 3

The Causal Loop Diagram demonstrates the main Outcomes (the issues with the most arrows going in) being, quality of life (which for the purposes of this research includes Mental Health of a non-clinical perspective), general health impacts (unspecified in the data from the respondents), anxiety and stress, The Drivers are shown as the impacts with the most arrows going out from them. These include noise, lack of control, distrust and traffic.

DISCUSSION

Whilst the overall approach to this research is holistic in nature and embraces a multi-faceted view of health, it offers a strong insight into the complex picture that arises between the environment and the impact on health from the environment. For example, noise and air quality impact on both environmental and personal health concerns, which again illustrates the complexity of this issue. Noise and air quality from an, 'environmental impact perspective,' can create health issues such as hearing loss and respiratory illness and from a social health perspective, noise can create stress and poor air quality which could prevent outdoor activities.

What is seen in this research is a complex and complicated picture. Consider a Venn Diagram with the three identified key themes, Social Health, Environment and Mistrust (lack of transparency) as separate entities with a middle overlap of Complexity.

The CLD qualitatively depicts different causes and areas of concern. The results of this research, and that within the analysed published literature, indicates that there was very little reference to the Quality

of Life or the impacts on mental health. This emphasises the value of using primary data to study the inter-relationships of the variables identified.

The combined chart of the responses to questions six and seven, demonstrates a move towards environmental concern once the respondents were presented with a hypothetical scenario of hydraulic fracturing happening, 'in your backyard.'

The overall result of this research is the clear indication of the complexity of the inter-relationships and difficulties likely to be faced with the introduction of hydraulic fracturing.

Perhaps this complexity demonstrates, as history has already shown, that there is in fact no clear-cut divide when considering all the factors that can affect a person's health and this should be borne in mind when looking for any future mitigation. An example of this divide is for instance, noise – what one person might see as stressful and damaging to their health, another might view the same noise as spoiling the environment in which they live, thus causing a different type of stress.

CONCLUSION

Whilst the PhD research studied the effects of hydraulic fracturing upon human health rather than upon the environment, the results of the research indicate that they can be applied to almost any major infrastructure project and there is an increasing awareness that the impacts upon the health of individuals and communities are affected by both social and environmental factors.

The analysis of the published literature of completed case studies and HIAs, indicates the paucity of references to the concept of the Quality of Life. History has already shown that there is in fact no clear-cut divide when considering all the factors which can affect a person's health although Public Health has tended to err towards the clinical factors rather than what might be termed mental health issues, and this should be borne in mind when planning any future development.

Environmental Impact Assessment is a legal requirement of the planning process, but this excludes assessment of the effects upon the health and well-being of people. The introduction of the HIA process into the planning application system, particularly in the early stages, might ameliorate some of the antipathy of the public to new developments. Recognition of the HIA values and principles of democracy and equity offers people the right to express their concerns and opinions and their anxieties both for the here and now and a sustainable future.

NOTES

[1] "World population projected to reach 9.7 billion by 2050," DESA, accessed June 3, 2017, https://ec.europa.eu/environment/eia/eia-legalcontext.htm

[2] "Environmental Impact Assessment – EIA," European Commission, accessed June 15, 2016, https://ec.europa.eu/environment/eia/eia-legalcontext.htm

[3] "Gothenburg Consensus Paper: Health Impact Assessment, Main Concepts and Suggested Approach," Europe, Who Regional Office, accessed July 5, 2017, http://www.euro.who.int/document/PAE/Gothenburgpaper.pdf

[4]"Public Health Services," World Health Organization, accessed June 15, 2017, http://www.euro.who.int/en/health-topics/Health-systems/public-health-services

[5] Virginia Berridge, Martin Gorsky and Alex Mold, *Public Health History*. (New York: Oxford University Press, 2011) 10121 - 2289

[6] "Social Determinants of Health," World Heath Organization, accessed December 21, 2017, http://www.who.int/social_determinants/en/

[7] "The Dahlgren-Whitehead rainbow," Economic and Social Research Council, accessed Nov 15, 2017, https://esrc.ukri.org/about-us/50-years-of-esrc/50-achievements/the-dahlgren-whitehead-rainbow/#:~:text=These%20social%20health%20factors%20have,individual%2C%20their%20environment%20and%20health.

[8] Helen de Pinho and Anna M. Larsen, "Systems Tools for Complex Health Systems," World Health Organization, Accessed January 15, 2018, https://www.who.int/alliance-hpsr/resources/publications/Facilitator_Manual_CLD_Course.pdf?ua=1

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World Health Organization. "Social Determinants of Health." http://www.who.int/social_determinants/en/

A CONSTRAINT-BASED DECISION SUPPORT SYSTEM FOR CAPACITY PLANNING IN INTERDEPENDENT EVOLVING URBAN SYSTEMS

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INTRODUCTION

As urbanization continues at a rapid pace, there is a corresponding need for tools that can aid urban planners in predicting impacts on municipal infrastructure. One of the most salient issues arising from urbanization is the strain that population growth places upon existing infrastructure systems.[1] Since planning decisions – including zoning – can alter land use patterns, they have a direct impact on legacy infrastructure. For example, densification imposes additional demands that can propagate through infrastructure systems in myriad ways. At present, urban planners and other stakeholders have limited means of estimating the impact of planning decisions on the ability of infrastructure systems to reliably deliver resources.

This paper describes a simple decision support system (DSS)[2] intended to aid urban planners in visualizing the impacts of planning interventions on urban infrastructure systems. It demonstrates a means by which urban planners can visualize the impact of zoning decisions or analyze the effects of growth. The software provides users with a district-level model in which each infrastructure system is represented as a network that delivers resources to buildings. Interdependencies between individual infrastructure systems allow demands from one system to propagate to another, providing the user with the ability to visualize changes across the entire set of infrastructures.

Capacity Constraints in the Evolving City

Residents of cities rely upon a variety of infrastructure systems to supply not only resources such as electricity and water, but also essential services such as health care, emergency response, and transport. These systems are typically dependent upon each other in a variety of ways, such that a failure in one system can cause cascading failures in others.[3] For instance, a broken water main may cause problems for co-located infrastructure (e.g. gas lines) and transport (e.g. roadways), which in turn may impact emergency response times.

Disruption to infrastructure systems can arise from numerous causes, including natural disasters, component failures, and sabotage. While these issues have been treated extensively in the research literature,[4] less attention has been paid to risks arising from the adaptive and evolutionary nature of cities.[5] Evolution and adaptation create challenges for legacy infrastructure systems, potentially introducing new risks that have far-reaching consequences for the city and its residents.

Population growth is a good example of an evolutionary driver that can impose additional demands on urban infrastructure. For instance, the London sewer system was originally designed to carry both rainwater and waste products; in order to avoid overflow, it contained a set of outlets that vent material into the Thames river. The system worked well, at least until the growing population started to push the capacity of the system well past its design parameters. The Thames Tideway project was eventually created to provide a solution to the problem, albeit at substantial cost.[6]

The adaptive nature of cities also has significant implications for infrastructure systems.[7] Urban planning can be viewed as an adaptive mechanism by which municipal governments influence the development of cities. Strategies of densification, for instance, are often pursued in order to achieve economies of scale and other desirable outcomes;[8] however, the addition of new residential units on top of entrenched legacy infrastructure systems can result in significantly elevated demands.

There are several capacity-related issues that arise when demand patterns are radically altered through either evolutionary or adaptive mechanisms. In the worst case, the average demands made of an infrastructure system may exceed its capacity. However, it is more common for problems to arise during *peak demand periods*. In Toronto, which has the highest rate of high-rise construction in North America, electrical power grids are already nearing peak capacity.[9]

Another major issue concerns *dependencies* between infrastructure systems. For example, the power required to pump water up into commercial and residential high-rises constitutes Toronto's largest single source of demand for electricity. [10] Electricity outages will cascade into the water system, effectively stalling water delivery in this type of building. Unfortunately, land-use planning, water planning, and energy planning are typically conducted by separate groups that do not share information.[11] This can result in significant risk, since the potential for cascading failure is not analyzed explicitly.

Planning Support Systems and Infrastructure

One method of mitigating the issues described above is to provide urban planners with software tools that allow them to visualize alternative *scenarios*. This paper describes one such approach, providing users with the ability to construct a model, visualize a baseline scenario, and then create alternative scenarios that explore the impacts of population growth or zoning decisions on the capacity constraints imposed by legacy infrastructure. Such a tool would be classified as either a *planning support system* (PSS) or a *spatial decision support system* (SDSS).[12]

As in other domains, the praxis of urban planning should be reflected in the design of the software. Planners are often incentivized to focus on actions with short-term impacts, [13] and they are often burdened with a multitude of demands, ranging from the mundane (e.g. code enforcement, permit processing) to the political. [14] Alongside these burdens are challenges arising from the complexity of urban processes, as well as the multi-dimensional (often wicked) problems that arise in crafting 'plausible futures' for cities.[15]

Provision of useful decision support is made more difficult by the relatively ossified nature of urban infrastructure systems. For instance, transportation, electricity, water, and sewage systems are capital intensive, expensive to maintain, and difficult to modify once in place. Infrastructure systems tend to grow slowly, subject to influence from decision makers with bounded rationality and short time preferences. [16] Interdependencies between systems mean that analysis of key issues such as infrastructure resilience [17] is inherently multi-disciplinary, beyond the scope of a single team of planners.

MODEL DESCRIPTION

Accurate modeling of urban infrastructure is a difficult task on account of heterogeneity. As a result, we make several simplifying assumptions. First, the major infrastructure systems (i.e. gas, electricity,

sewage, water) are abstracted as flow networks that carry resources to consumers, and no attempt is made to model domain-specific physical processes.[18] Second, resource demands are represented on an hourly basis, matching the sampling rate found in typical data sets. Third, social systems (i.e. health care, education) are modeled using catchment areas. Fourth, transportation demand is modeled in a simple manner for reasons that will be described below.

The resulting model provides a view of an urban district at the level of individual lots/parcels and buildings. It focuses explicitly upon *demands for resources*, showing how the various infrastructure networks satisfy those demands in the presence of *constraints* – namely, supply limits and capacity limits associated with infrastructure components (e.g. pipe diameters, classroom sizes).

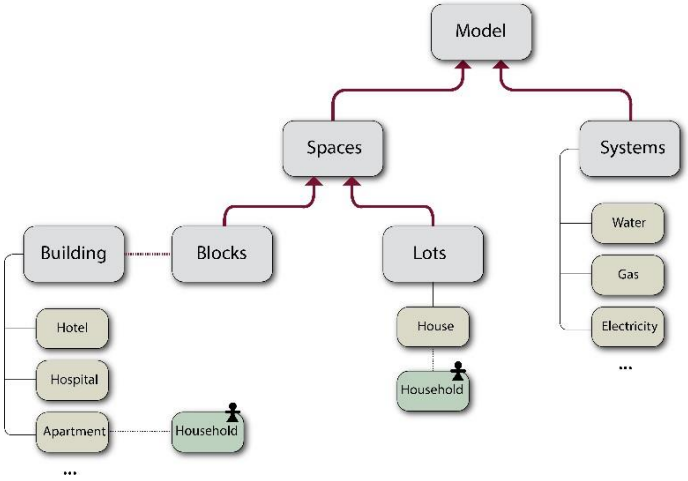

Figure 1. Model Entities

Figure 1 shows the basic entities in the model. The area of interest contains a spatial region – the most important elements of which are *blocks* (containing buildings of various types) and *lots* (containing low density housing). Households are allocated to lots and buildings as a function of building type. In future, household information will be drawn from either an internal or external demographic model.

Demand Curves and Propagation

Demands for resources are computed separately for residential and non-residential buildings. The latter are assigned demand profiles for each resource type according to empirical data.[19] As mentioned above, demand data is sampled on an hourly basis over a 24-hour `average day' cycle. Figure 2 shows (normalized) water demand curves for buildings:

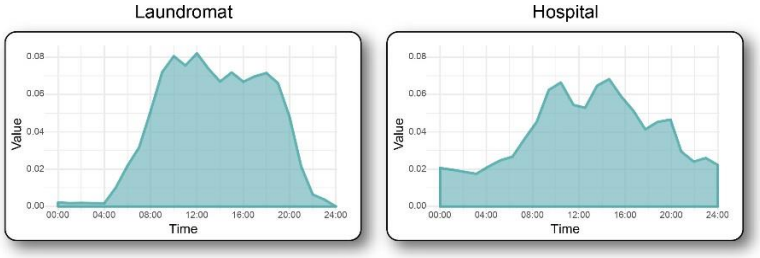

Figure 2. Demand curves for two types of buildings

For residential buildings, aggregate demands are calculated by summing up the demands for each household in the building, as well as the demands from the building itself (i.e. the basic resources

required to keep the building operating, even if no people are present). Figure 3 shows a schematic of this computation:

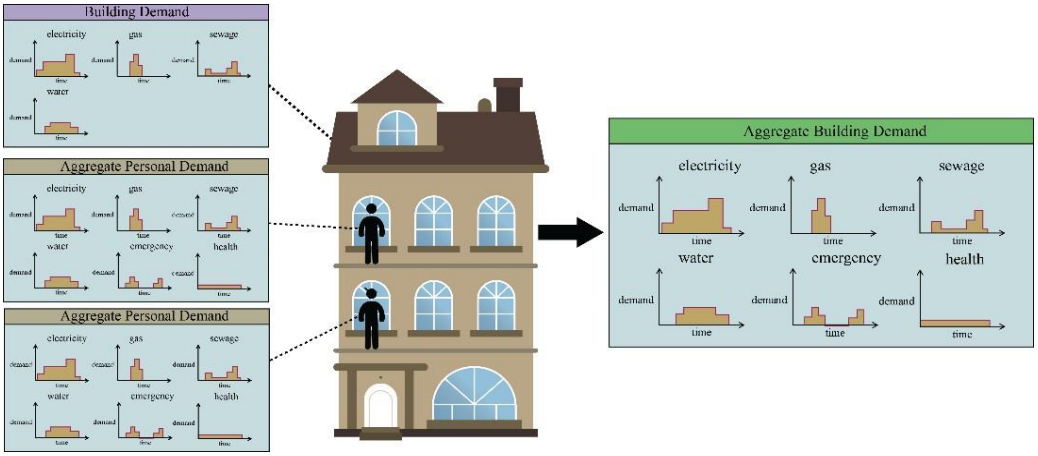

Figure 3. Demands for residential buildings

Once the demand curves for the buildings are established, a probabilistic algorithm is used to propagate those demands onto the infrastructure networks. Figure 4 illustrates how water demand is pushed onto a fragment of a water distribution network:[20]

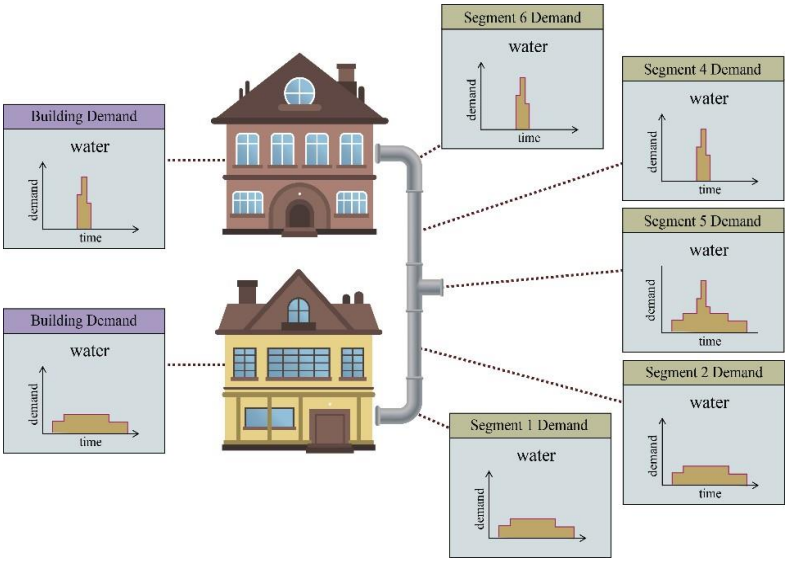

Figure 4. Demand propagation

Transportation

Transportation is the one major exception to our representation of infrastructure systems as flow networks. Typically, a comprehensive activity-based transport model would be used to generate travel episodes; however, most do not operate at the block/lot level.[21] In this simple prototype, transportation demand is generated by selecting a set of random nodes from the street network for each household. Figure 5 illustrates this approach for a single lot:

Figure 5. Generating transportation demand

Data Sources

Figure 6 shows the data flow. Road network information for a district-scale area is exported from OpenStreetMaps and loaded into ESRI CityEngine, where it is edited manually to remove artifacts. [22] Building shapes, block/lot geometry and road network data are exported from CityEngine to a custom application in which the user may define infrastructure networks and assign data to buildings.[23]

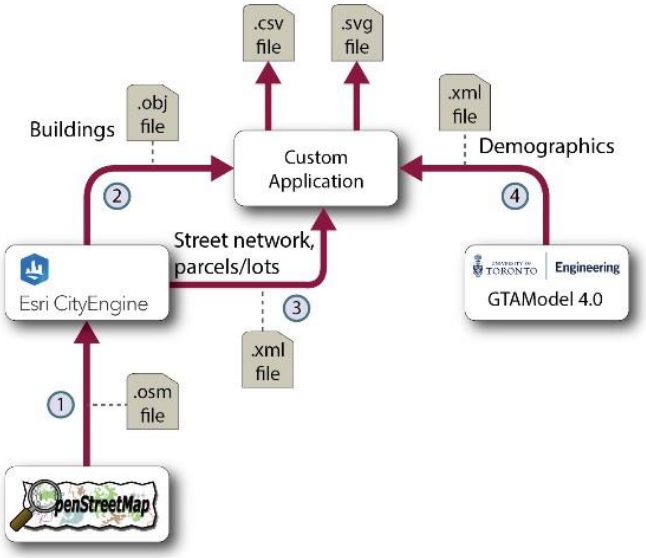

Figure 6. Dataflow

While the application supports 3D rendering (Figure 7), a 2D view is more convenient.

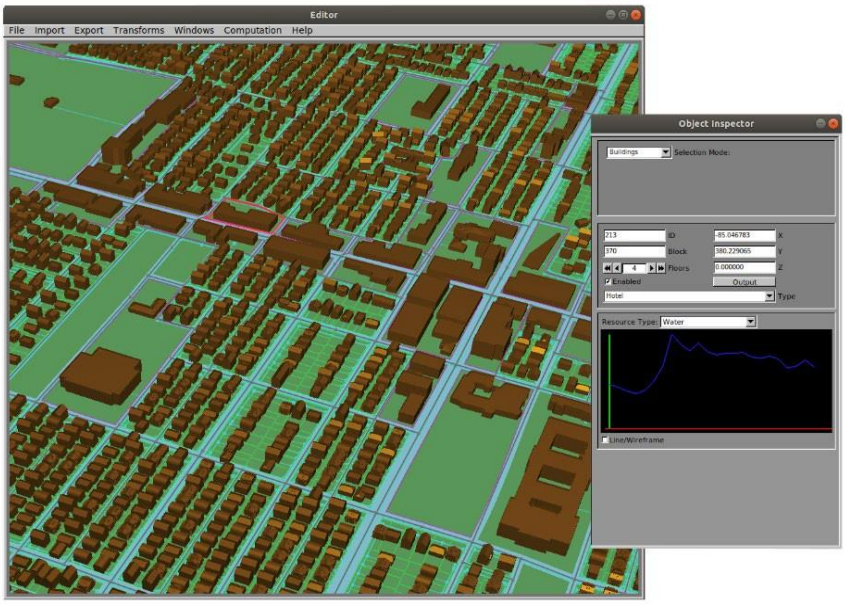

Figure 7. User interface in 3D mode

Infrastructure Modeling

Infrastructure systems are created by the modeler within the custom application. Nodes and links are added in order to create a flow network for each major infrastructure system (e.g. water). Each link (directed or undirected) has a *capacity constraint* indicating the maximum amount of resource that can flow through it. Figure 8 shows a basic water network, using a overhead view that is more manageable than 3D. White circles correspond to demand nodes for buildings/lots, while blue circles are transmission nodes.

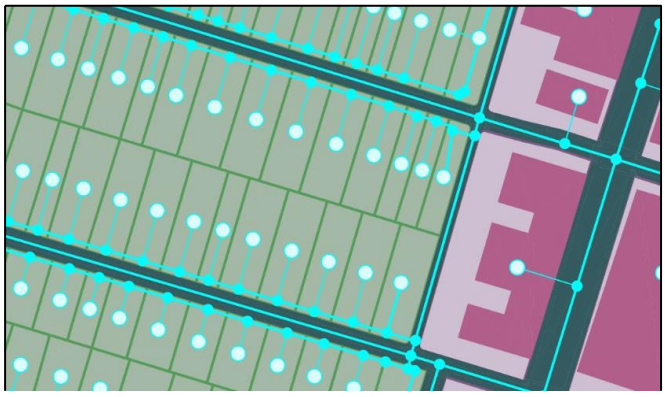

Figure 8. Creating a water network

Multiple infrastructure systems are added to the model in separate layers. Each layer has a single flow network with source nodes, transmission nodes, and demand nodes. Figure 9 shows manual editing of infrastructure layers:[24]

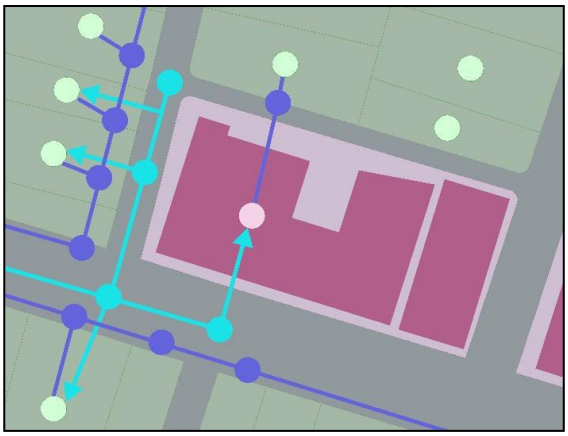

Figure 9. Editing multiple networks

Modelers may also designate *interdependencies* between infrastructure systems by adding them manually. Various forms of dependency have been discussed in the engineering literature, including physical, geospatial, informational, social, and financial. [25] The current model supports *physical dependencies*, in which a resource flowing through system A is required by components of system B. Figure 10 shows a schematic of two infrastructure layers connected with interdependencies.

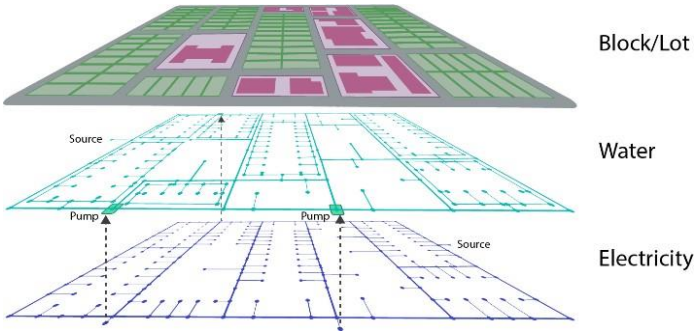

Figure 10. Dependencies between subsystems

Figure 11 shows a large model of downtown Toronto, augmented with water and electricity networks. Models of this size are quite difficult to display in print, so close-ups are used.

Figure 11. A large model of downtown Toronto

Visualizations

The user can visualize data in each scenario in several ways. Figure 12 shows two examples: (A) a heat map of demand levels for buildings, color coded from green (low demand) to red (high demand); (B) a representation for a given building (red) of the infrastructure components that supply it with resources.

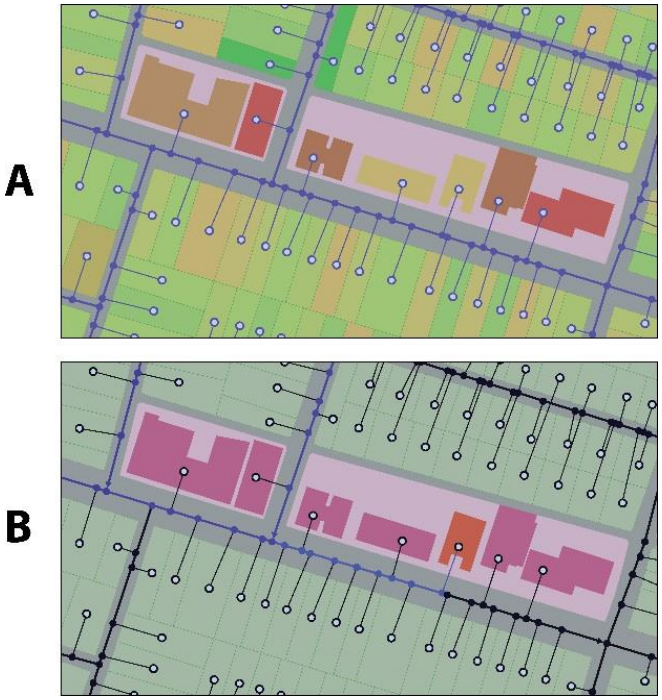

Figure 12. Interactive Visualizations

Comparative analysis can be performed by constructing: (1) a baseline model; (2) one or more variants, in which demand values, capacities, building types, and network components are altered. Figure 13 shows a baseline scenario (A), and a variant where high density residential housing has replaced a commercial building (B); demands are in italic font, and pipe edges are color coded from black (no demand) to light turquoise (high demand).

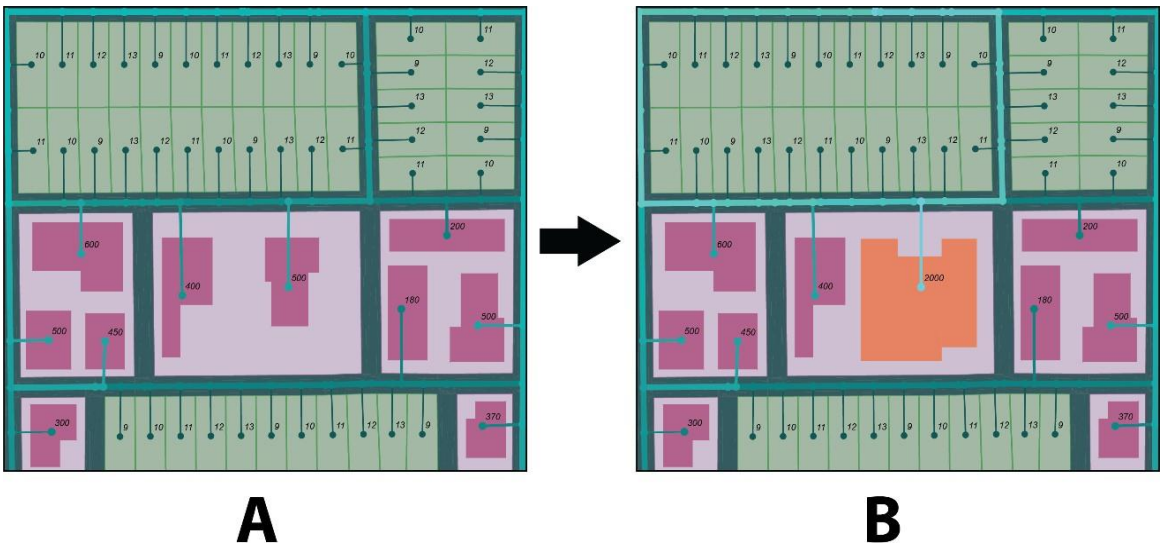

Figure 13. Baseline scenario (A) and alternative scenario (B)

Instead of viewing demand values, the user can opt to view a heatmap showing *load levels* – that is, the percentage of a component's capacity that is being used in the scenario. Figure 14 illustrates this option, with load colored from green (low) to red (high), showing how the alternative scenario pushes a subset of pipes towards their full capacity. Since demand data is given over a daily 24 hour cycle, those components most heavily utilized during *peak demand* periods can be identified.

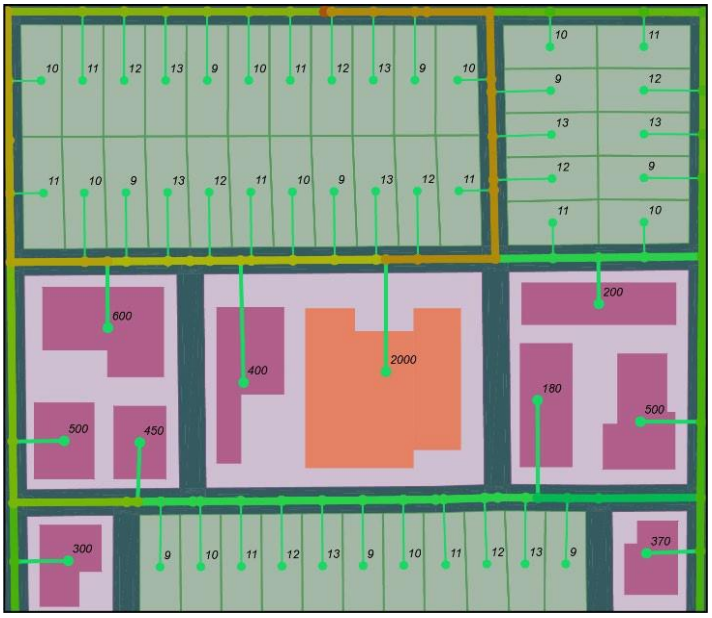

Figure 14. Heat map of load levels for the scenario in Figure 13(B)

Many additional forms of visualization (including statistical analysis) are supported but not shown due to space limitations. For instance, demands imposed on schools and on roadways can easily be visualized using heat maps, histograms, or animations.

CONCLUSION

The prototype presented in this paper is preliminary work, intended to show one possible means by which a DSS system could be developed to aid urban planners in thinking about the impacts of

interventions on infrastructure systems. Coupled with an appropriate demographic model, the software could also be used to show how infrastructure is stressed by evolution – namely, population growth and changing land-use patterns.[26]

There are several major challenges with this type of DSS. First, *user interface* (UI) design is a significant problem, given the complexity involved in presenting multiple layers of infrastructure systems. 3D visualization turned out to be confusing, hence the use of 2D graphics that are more suitable for use in *geographic information systems* (GIS). Visualizing physical dependencies between different infrastructure layers is particularly difficult.

The second major problem concerns data availability. Municipalities often lack information on their infrastructure systems; even where such data exists, it is often in inconvenient formats, scattered between different organizations, or subject to security restrictions. [27] As a result, researchers are developing proxy methods for inferring the presence of infrastructure.[28] With district-scale models, it is feasible to assemble a combination of real and synthetic data to approximate real-world infrastructure at an appropriate level of abstraction.

The preliminary DSS outlined in this paper could be expanded to include full demographic modeling. Instead of generating demand from a library of empirical datasets, demands for resources could be a function of activities undertaken by agents. This would allow integration with common land-use models, albeit there may be few that operate at the lot/parcel level.

Finally, the real test of a DSS is whether it meets the needs of urban planners. Researchers have long criticized offerings in this domain on various grounds, including maturity, user-friendliness, and compatibility with actual praxis.[29] Any tool for analyzing complex infrastructure systems faces the burden of representing a tangled set of systems in as simple a manner as possible. Methods for doing so are sorely needed and should be a subject of future research.

NOTES

[1] For a recent work discussing the consequences of growth in a variety of systems, including cities, see (Smil 2019).
[2] (Burstein and Holsapple 2008) (Power 2008) (Keen 1978; Keen and Morton 1973)(Sprague 1980) Old thesis p.71 has a ton of material.
[3] For more on cascading failures, see (Zio and Sansavini 2010) and (Buldyrev et al. 2010).
[4] Disruption to infrastructure systems has been studied in several research communities, including Critical Infrastructure Protection.
[5] Numerous scholars have argued that cities should be viewed as open-ended, complex systems subject to evolution – see, for example, (Bettencourt 2011) and (Desouza and Flanery 2013).
[6] The rationale for the Thames Tideway project is ably covered in (Stride 2016, 2019).
[7] A discussion of cities as complex adaptive systems can be found in (Batty 2008, 2013).
[8] See, for instance, (Le Néchet 2012).
[9] For a detailed exposition of the challenges facing downtown Toronto, see (Kishewitsch 2015).
[10] Ibid.
[11] Ibid. See also (O'Looney 2001), in which the author notes that transportation planning and local `comprehensive' planning take place in silos, resulting in a set of policies that are not cohesive.
[12] There is no consensus on terminology. For an overview of planning support systems, see (Geertman and Stillwell 2009b). A later volume from the same publisher contains articles focused on urban planning (Geertman, Toppen, and Stillwell 2013).
[13] See (Klosterman 2013).
[14] For a discussion of the various demands on planners, see (Geertman and Stillwell 2009a), (Barnett 2009) and (Klosterman 2011). The connections between urban planning, politics, the legal system and other socio-technical aspects of cities are discussed in (Levy 2017).
[15] See (Crooks, Castle, and Batty 2008) for a discussion of the major challenges facing planners, including demands for participative policy-making. The distributional issues (allocation of resources) involved in planning are discussed in (Levy 2017), while wicked problems are introduced in (Rittel and Webber 1973).
[16] See (Andersson 2008) for a discussion of bounded rationality and short time preferences, as well as (Bettencourt 2011) on the topic of the growth of infrastructure.
[17] For a recent discussion of resilience in cities and the importance of considering the various dimensions of cities as socio-ecological system, see (Esteban 2020)
[18] This is in keeping with a network approach to cities, as described in (Batty 2013). The use of domain-specific modeling techniques would drastically increase the complexity of an integrated model.
[19] Empirical data for building demands is obtained from public sources, such as (Aquacraft 2011).
[20] Details on the computations are beyond the scope of this paper. See (Sadeh and Fox. 1989; Sadeh and Fox 1996)
[21] For more on activity based models, see (Miller 2018). The data from transportation surveys is typically collected at the census track level. Note that our initial model omits pedestrian traffic and public transit.
[22] OpenStreetMap, online at https://www.openstreetmap.org/. ESRI CityEngine, online at https://www.esri.com/en-us/arcgis/products/arcgis-cityengine/overview.
[23] Integration with a standard transport model is an optional step that was not undertaken in this paper.
[24] Each layer is identified by a unique color. Demand nodes corresponding to lots are light green, those corresponding to buildings are light violet.
[25] For a classification of infrastructure dependencies, see (Kröger and Nan 2014).
[26] Used to analyze future states on the basis of demographic projections, the tool would be a method of *projection*, per (Isserman 1984).
[27] (Mair et al. 2017).
[28] Ibid. Also see (Sitzenfrei, Möderl, and Rauch 2013).
[29] See (Geertman and Stillwell 2009a) and (Klosterman 2013).

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SOCIO-SPATIAL COMPLEXITIES IN GLOBALIZING 'COMMERCIAL STREET', BANGALORE, INDIA

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INTRODUCTION

The growth of cities in the world has always been a journey that signifies the essential highlights in history and continued growth as an element of its current state and affairs. But the current global scenario of growth exhibits an added layer of highlight- one that is highly interdependent with the phases of growth across the globe. Multiple factors now lay foundation to the growth of any single city. This growth holds a very strong and visible relationship with the process of globalization. This interdependency in the growth pattern has thus brought about multiple instances of varying or conflicting elements that add to the overall character and identity of the city. Unlike traditional societies that aimed towards self-sustainability and development within its geographical and political boundaries, today growth of any city does not limit itself to confined boundaries. Rather, they find themselves seeking roots for growth or finding their own roots of growth from beyond their visible boundaries. Thus, an unrestricted system of networks and linkages exist both visibly as well as invisibly to contribute together to the growth of any global city today. This brings about a continued struggle of co-existence and magnifies the socio-spatial complexities when the global demand attempts to meet the local image. The complexities vary in its domain but remain constantly co-related with each other.

This paper is primarily oriented towards understanding the changing scenarios of growth in commercial streets that are influenced by the process of globalization. A case of Commercial Street in Bangalore was chosen for the same, to identify the impacts in an Indian Regional context. It attempts to observe the range of socio-spatial complexities involved and the possibility of the same to lead towards a condition of placelessness. The case was taken to understand the phenomenon and analyse the conflicting elements brought into the local horizon by the process of globalization, which then leads to socio-spatial complexities.

Networking and Globalization

The relationship between a place and the various socio-spatial links that connect to that place play a role in sculpting the form and face of any place. And globalization has today become the key sculptor in this formation of associations. While considering a global city, the links are most often associated with other global cities of the world, as this remains a means to continuously upkeep the 'global image'. This is particularly associative because as Manual Castells put forth, places receive their meaning and function from their nodal role in the specific network they belong to in this global system. And these manifestations of networks bring in their own spatial manifestations due to a need to have associated

spaces[1]. Further, as David Harvey put forth, with the shrinkage of time and space, a homogenization of space occurs in the global nodes. This homogenization of space poses serious difficulties for the conception of place and to the relative identity of a place[2].
These global associations along various hierarchies have supplemented to mutually growing relationships at all levels of growth. They have induced transformations: beginning with shift in occupational sectors to change in morphologies of the place.

Placelessness

Placelessness as realized from existing studies of Edward Relph, can be understood to be a point in transformation where a city or place loses its individual identity and unique characteristics[3]. In the context of networking and globalization, this can be considered as a level of transformation where cities lose their identity and transform into spaces that are inauthentic to their actual context and experience. With the global demand, the transformation to acquire a global image could lead to complexities and conflicts within a local scenario.
The various manifestations of placelessness as identified by Relph include: "other directedness in places, uniformity and standardization of places, formlessness and lack of human scale and order in places, place destruction and impermanence or instability in places" [4]. These parameters could further be compared with the type of socio-spatial complexities generated in a context, in order to realize a possibility for gradual change into a placeless context.

Commercial street, Bangalore

For the purpose of study, Commercial Street, Bangalore that has been an integral part of Bangalore since the pre-independence era, has been identified. The street that was conceived to serve as the major commercial street for the British and the elite had a variety of services and goods. After independence, the street saw casual integration from the adjoining streets that were previously occupied by the Indians who served the British at the Commercial Street. This integration was particularly visible in the form of extended vending into the market from the adjoining streets.
Later, with the post-networking period of Bangalore, the street witnessed a major wave of transformation. The city as a whole saw extensive migrations from across India and the world due to Bangalore acting as a global node to the Information Technology industry. During this time, commercial street that was one of the major business centers of the city saw its need to transform according to the needs of the hour. With the emergence of a global era, commercial street too sought to accommodate global brands and led itself into the process of globalization.

SOCIO-SPATIAL COMPLEXITIES

With the spread of globalization, places underwent transformations required in line with the global demand. The transformations in the commercial scenario were most often a situation of brand-scaping and attempted territorialization by brands. As understood from the studies by Klingmann, the replacement of intricacies of the local culture by brands who attempt to create culturally independent brand territories is being termed as Brand-scaping[5].

Primary Observations and Analyses

The primary observations of Commercial Street, Bangalore, attempted to identify the socio-spatial complexities that could be observed on site and the underlying cause for the same. These observations could then be further analyzed with respect to the parameters of placelessness as put forth by Relph in order to understand the possibility for the condition of placelessness.

Built Use

The initial observation obtained on street would be the nature of built use on the street. Today, the street remains completely commercialized but without holding the characteristic shop-house character of the street as during its initial years. The street when opened up for economic benefits and through influences of the networking brought forth due to globalization, changed the character of work-live relationship on the street. Earlier a street that held space for the casual life of even the merchants of the street, today remains in a condition of deteriorated work-live relationship. With a greater economic platform being laid out at commercial street by the incoming of global and glocal brands, the area could be better profited from complete commercialization. This in turn affected the possibility for a co-existent mixed-use nature for the street.

Morphology

Morphologically, the street in the present lacks architectural character. Today, it holds similar looking structures that seek greater advertising space and larger commercial footprint rather than offering an image to the place. Local stores in turn struggle to match with this transforming character. Thus, quickly dissolving any possibility for a morphological articulation on the street. Another aspect remains the façade overlays, where every building's primary façade purpose remains to advertise. It was observed that 49.2 percent stores have already used more than 50 percent of the façade space for the purpose of display or advertising. The imposition of advertising panels even upon old structures leads to a background existence for the architectural character of the place, while the new character consisting of the advertisements of display windows take the foreground. The character of the street thus gradually changes upon the power of advertising. This in turn has brought about territorialization of space by major brands. The transformation of the street in the direction of eradication of any original architectural character derived from the Indian commercial architectural style is thus a direct result of the intense glocalization and globalization that is playing its role in the street. Commercial establishments now attempt to enhance their visibilities individually rather than play a part in the larger commercial market as had been the original culture of Indian markets.

Similarly, further morphological observation brings to light the creation of building envelopes for visual projection and competition through projecting a larger massing for the commercial structure. This competitive massing by glocalizing stores is an attempt to create for themselves an identity that is huge and seemingly global, but it in turn affects the visibility of small local stores, some of which are sometimes absorbed into these projected envelopes during the process of creation of a large glocalized store.

Figure 1. Building Envelopes for Visual Projection absorbing small stores within the

Moreover, with extending facades, a lack of space for local vendors leads to gradual displacement of these vendors from the street. Also, due to rising economic value caused by brand-scaping the street, there is an increased tendency for demolition of small and older structures in order to pave way for larger commercial areas. This in turn heightens issues in relationship between the people and the built. In a survey conducted to recognize places significantly identified by commuters on the street, it was noted that a single store that held an old and original character was prominently identified by all. This could thus be considered as an indication that street commuters still seek identifiable spatial aspects to relate themselves to the space, even during commercial purposes. With growing global-glocal relationship and extending globalization and glocalization, the stand-alone identities of the local in the street would be gradually sidelined or displaced and finally lead to an identity crisis, where streets and places remain solely attributed to the brands occupying the space.

Built-Human relationships

With respect to built-human observations, it can be noted that the buildings that have been a result of the intense transformations due to globalization have scaled themselves to a proportion that remains beyond the normal scales that could be associative to a commuter along the street. It was noted that with the changed scale of buildings, 62 percent of the commuters failed to identify locations along the street, signifying a lost sense of relationship to the street. With more than 50 percent of the structure being attributed to advertisement and displaying, commuters now experience an imposition of a sense of gigantism and a lost sense of relationship along the street. Moreover, there is also a loss of the original sell-buy concept of Indian commercial culture and a transformation into a come-get commercial character. This change in commercial culture is also a result of the changing architectural character of the street leading to a complexity in commercial relationships in the street. With changing architectural character that exhibits massiveness and commercial power, retailers now instill a feeling of being ‘big’ into the consumers. The streets adjoining commercial street are still to make giant steps into glocalization and globalization and thus exhibits the remnants of the Indian commercial culture.

As already said, 62 percent of commuters along the street failed to identify locations of major commercial establishments on the street. But the exceptions that were spotted were the shops that were located at the nodes and those with experiential activity such as eateries nearby. These were identified to be in contrast to the other shops and locations on the street. From this observation, it could be noted that people required a breathing node- an experiential space to identify themselves with or an activity that is expected to hold a cultural or direct relationship to the people for apt referencing. This thus indicates that even in large commercial areas, with ample commercial references, it was the ones that required human indulgence that created memories within the users of the space.

Since street references have been almost completely put to dependency upon brands occupying the space rather than the place itself, it has interfered with the socio-spatial relationships of the place. This further signifies the territorialization by brands, putting the place itself into the background. With almost complete commercialization and in turn territorialization by branding, the referencing of location along the street therefore remains unstable and under brand names, that could change locations at any time. People fail to identify themselves with locations on the street and try to relate themselves to the street using unstable varieties of changing brands and changing street character, that remains widely different to the local cultural identity. Places remain unidentifiable for the local people, since they now do not hold an original street character with activity nodes, places of religious interest or gathering or any other activity that could be related to the unique local culture of the street.

Segregations

Movement direction surveys indicated that there was a significant edge creation at either end of Commercial Street. People tended to traverse back and forth along the branded street, rather than explore beyond the main commercial corridor. The changing cultural attitudes of the people and the changing economic conditions along with the incoming of global and glocal brands have thus initiated a segregation. This has also led to further widening the divide between the local and the global-glocal. Although venturing into nearby streets was not absent, it seemed limited. However, the spill over into the immediate adjacent streets of Commercial Street was considerably better than those placed beyond the main movement corridor of Commercial Street. But the complete system of movement could be suggestive of a possible visible social divide in the future- as an elite street and a local street, or a possibility for absolute transformation for integration.

With respect to the activity spill over, it could be visually observed that the stores utilized the available pedestrian paths for advertising, inducing pedestrian spill-over from an already strained pedestrian space onto the road. This is because greater predominance is being given to economic activity than for pedestrians who constitute the local elements of the street. This has led to reduced public space, including for normal commuting- thus segregating and prioritizing between economic activity and a need for safe public space, rather than attempting to integrate the two.

Placelessness

With respect to the parameters of placelessness, it can be noted that the observed conditions such as lack of diversity in architectural character, façade overlays, building envelopes and demolishing of original structures leads to uniformity and standardization of places, besides being inducive to place destruction. Moreover, there is also formlessness, lack of human scale and order in places as observed from the lack of built-human relationship through scale or relativity. The impermanence and instability of places is also put into effect through brand-scaping, generating unstable locations.

Theorization

For the purpose of theorization, a few major understandings that bring about the focus of the all the observations can be layered to comprehend the system of complexities present in the considered case study. Firstly, a major wave of glocalization, initiated by inserts of global brands into the street has brought about socio-spatial complexities in a local commercial street in an Indian context. In turn, these inserts have increased the global-glocal relationships on street rather than the global- local relationships. This points towards a redefined system of socio-economic relationship, where the local would gradually pave way for the growing scenario. Moreover, as economic relationships change it also leads to change in character with respect to morphology, social relations and activity on the street, which in turn initiates a cyclic process by acting as an incentive for further similar economic inputs that induce further branding and territorialization. The global-local conflicts lead to further complexities in the areas of morphology, activity and social relations by creating a situation where the place remains unidentifiable with the local identity, thereby leading to a condition of placelessness. In the case of globalizing commercial streets, this condition was further contributed to by continuous transformations to upkeep the transnational image and open doors to the global economic players and glocal players, who further push the small local players to the background. This in turn, again brings about a changing morphology to the place that is in line with the economic image of the player.

Thus, it can be appropriately theorized that the socio-spatial complexities induced by globalization in globalizing commercial streets in the Indian regional context exhibits a cyclic relationship between economic conditions and socio-spatial relationships, finally leading to a condition of placelessness.

CONCLUSION

The study thus concludes that globalization in a local horizon brings about an atmosphere of varying global-local conflicts and thereby socio-spatial complexities. These conflicts and complexities further lead to a condition of placelessness.

A need for a new placemaking strategy thus exists, where the new commercial street designs integrates the global, glocal and the local on a single platform, without being detrimental to any of them. This has to also ensure the continued vitality of the street both in terms of activity and commerce. Designating co-joined spaces for local-glocal/global and ensuring that both are equally brought to the forefront through appropriate policies and guidelines in line with the commercial condition of the place could help to mitigate the issue of gradual dissolution of the local.

Therefore, in order to reasonably bring out an air of progress and transformation without compromising upon the local aspects of the place, the onus is on the urban designers and the implementing agencies to ensure that a streetscape design with appropriate character is developed and exists to check conformity for the new inputs on the street, so as to avoid further exacerbation of the conflicts and complexities.

NOTES

[1] Manual Castells, ed., *The Network Society: A Cross cultural Perspective* (Edward Elgar Publishing Limited, 2004), 38.
[2] David Harvey, *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change* (Blackwell Publishers, 1989), 257
[3] Edward Relph, *Place and Placelessness* (Pion Limited, 1976), 79-80
[4] Relph, *Place and Placelessness,*118-119
[5] Anna Klingmann, *Brandscapes: Architecture in the Experience Economy* (MIT Press, 2007), 83

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FOODSCAPING SUBURBAN HOUSING - THE ROLE OF COMMUNAL GROWING FOR SOCIAL COHESION AND TO REIMAGINE THE CULTURAL IMAGE OF 'SUBURBIA'

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ABSTRACT

This paper aims to study the conflicts that arise from the ever-present need for housing and urban expansion, with a primary focus on creating an identity for these communities on the edge.

It studies the shifting paradigm of the suburban community and proposes to reimagine the image of suburbia to balance out urban encroachment on rural landscapes through foodscaping the architecture. Concepts of communal living and communal food growing are explored spatially using design as a research tool to better understand how foodscaping can create a sense of place and social cohesion. The capacity of design to bring people together and increase social cohesion is explored through architecture that encourages communal food growing. These ideas form a preface to help broaden views of sustainable suburban living.

These hypotheses are explored at different scales: from the urban scale to the building fabric scale. This study reflects on how to make in-between spaces into places; thereby giving them an identity and further exploring the way people would interact within these places using food production as a mediator. Thereby reflecting on how design at the urban scale affects the architecture of a building and vice versa. Conclusively, communal living could provide the necessary platform where the boundaries between the urban form and the building create opportune spaces to harmoniously manoeuvre the hierarchy of the private-semi-public-communal spaces while addressing food security of its citizens.

INTRODUCTION

While this study is not primarily focused on urban design and the form of settlements per se; it still attempts to understand the wider city context and the dynamics of its relation to the way people live in communities on the edge and the reciprocal impact it makes as a whole on the city itself. Focusing on sub-urban farming in semi-public spaces ranging from urban design to architectural design level, the spatial definitions of social relations, identity and quality of life of citizens within those spaces are analysed. Thereby using food production as a mediator, the Research Question to be explored is as follows:

How can Communal food growing increase social cohesion and help to reimagine the image of 'Suburbia'?

Imageability – Image of the city

Most urban areas in developed countries have slow growth rates at 0.5-0.6% per year whereas the peri-urban areas, classified as areas on the urban-rural interface are growing four times that rate[1]. Rapid growth at this interface is usually new housing developments[2], and these communities on the edge lack a sense of belonging as they struggle to identify themselves with their environment, thereby lacking social cohesion. The study focuses on the suburban image of the city of Cardiff, in Wales, U.K.

Located in the NW suburbs of Cardiff, Plasdwr, see figure (1), is a housing development site for the proposed Local Development Plan 2006-2026 by the Cardiff City Council[3]. The intended site for design study is comparatively small sizing up to 6.2 Ha and is known as the Pentrebane farm. The existing site being primarily farmlands, the immediate neighbourhoods help to better understand the existing image of suburbia.

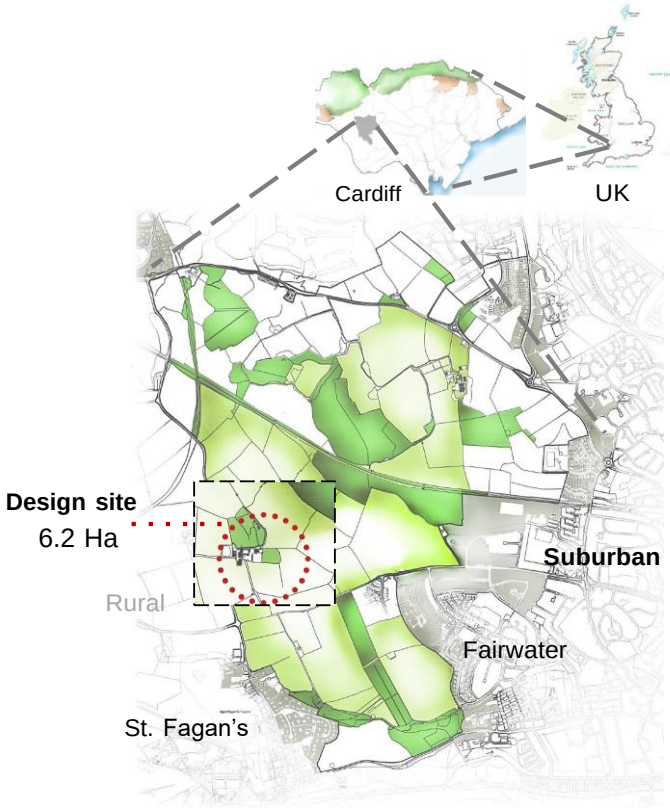


Figure 1. Design site - Plasdwr, NW suburbs of Cardiff

The Image of a city usually invokes the mental picture of the place as remembered by its residents and the world view as seen by the people passing through it, including the tangible and the intangible aspects of the place. Lynch identifies the legibility of the cityscape as the visual quality of the physical form, which gives it a high probability of evoking a strong image in any given observer and thus defines this term as 'imageability'**Error! Bookmark not defined.**.

As such physical form is perceived as Paths, Edges, Nodes, Districts and Landmarks; seen as fragmented with sudden transitions within these suburban neighbourhoods. While detached, terraced and apartment typologies appear connected with paths and nodes, sparse developments as low-density districts with fragmented boundaries lack a definite edge creating a hybrid urban-rural image.

Foodscaping

As local produce becomes the trend for healthy living; urban food projects become more accessible in attempts to reduce 'food miles', which is the distance food travels to reach your table. Justifying that local produce is better as a measure of food sustainability; brings us to define the concept of 'foodshed' as the "geographical area from which a population derives its food supply" [4] as a means to interconnect the city and the country to form a sustainable food system in attempts to bring resilience to the community [5]; thereby propagating social cohesion through communal growing and rebuilding the image of the place.

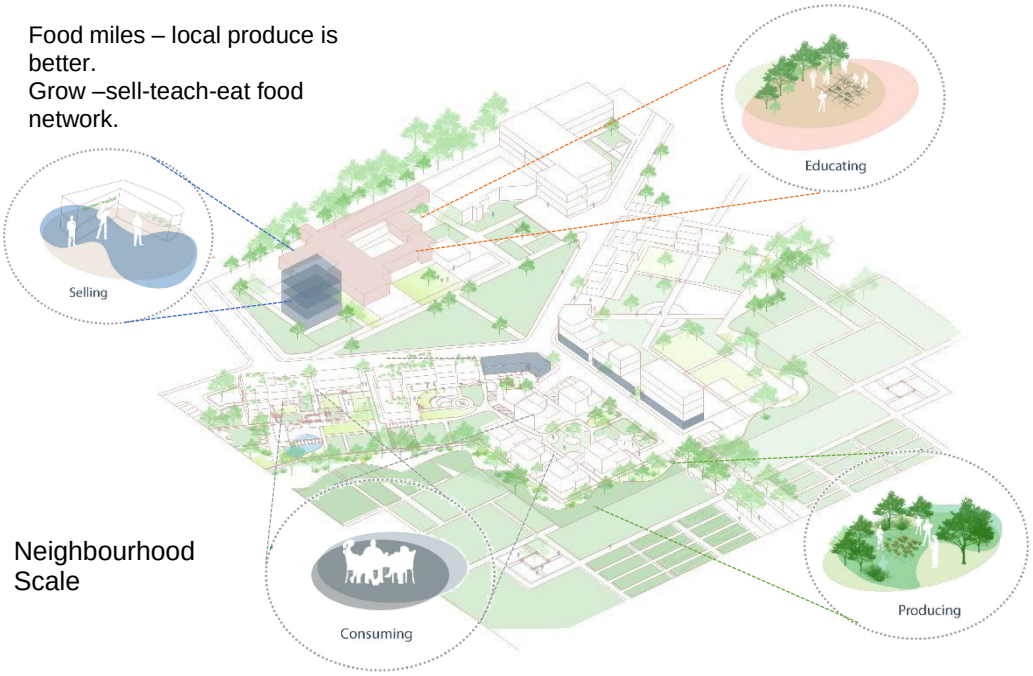


Figure 2. Foodscaping at the neighbourhood scale; design site

Foodscapes are the spatial distribution of food across urban spaces and institutional settings[6]. Therefore, in the context of productive image rebuilding, foodscaping can be considered as edible landscaping. And while urban agriculture is also farming activity, foodscaping is derived from 'landscaping'; thus, assuming that it should predominantly be the design of land in context with food growing and encompasses all stages of food with the grow-sell-eat network.

Introducing foodscaping at the design site, with figure (2) we attempt to reduce food miles by making the food produce local in hopes of creating a self -sufficient food network within the neighbourhood that works as grow- sell-teach-eat cycle. At the architectural scale, within one of the clusters, as shown in key plan figure (3.1), this image comes together as a cohousing apartment with green walls, rooftop gardens, integrated greenhouses and kitchen gardens. Figure (3) is an illustrative image of the preliminary design showing the elements of foodscaping embedded into the architecture. The co-housing apartment proposes a way of shared living with each floor sharing a kitchen/dining space; enabling the residents to share a meal. Foodscaping components such as the food forests and hydroponics are a part of the design criteria aiming for self-sufficient housing.

Collective Identity

Stokols and Shumaker defined place as the ‘entity between aspects of meaning, physical properties and relative activity', and emphasized the collective perceptions of place and propose that a place has a ‘social imageability'.[7] This imageability is the collectively held social meanings the place has amongst its occupants or users.

With foodscaping building the collective identity of a place, the spatial qualities thus employed at a community level can help understand the role of design in shaping the architecture of a building around it, as opposed to the generic approach of designing the building with the environment in context.

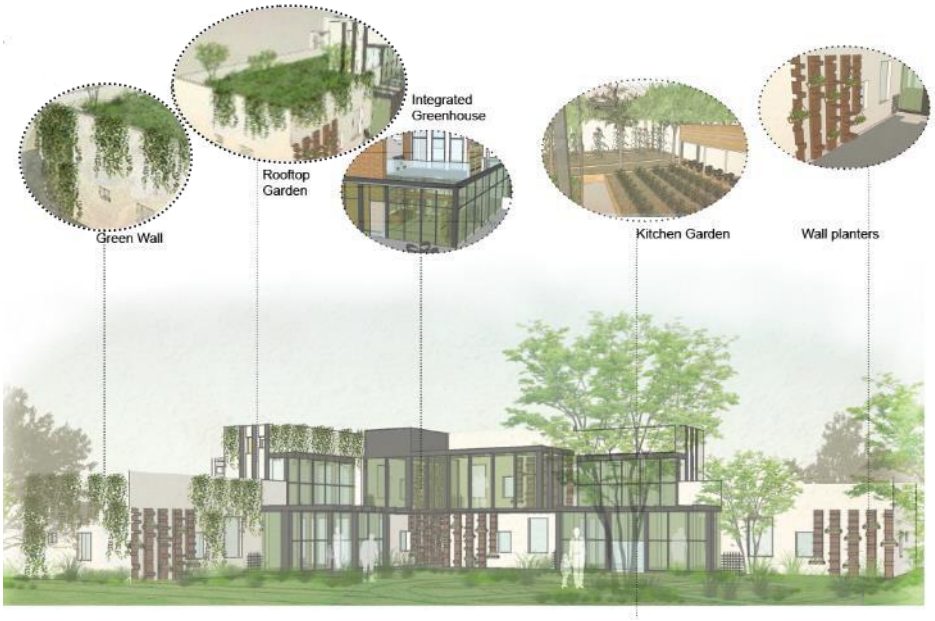


Figure 3. Illustrative elevation; Co-housing cluster showing foodscaping at the architectural scale

Figure 3.1. Key plan showing the cohousing cluster

METHODOLOGY

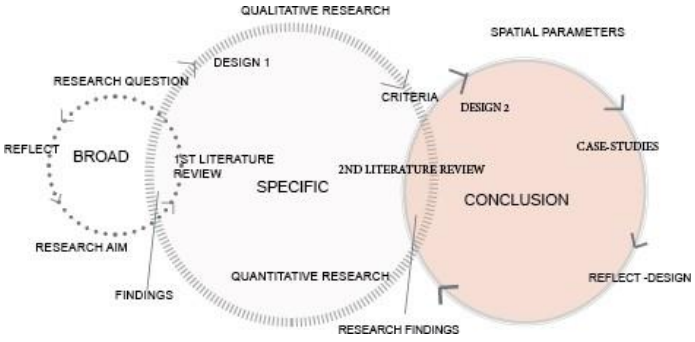


Figure 4. Research framework

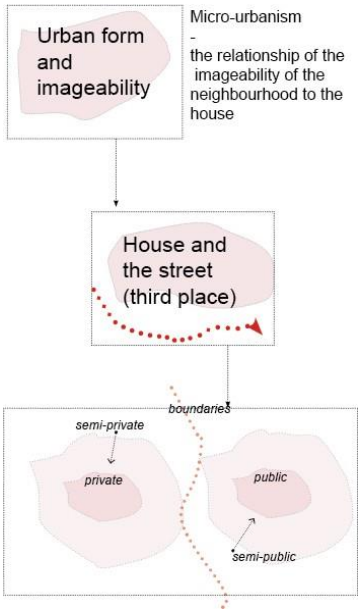


Figure 4.1 Research by design; from urban to architectural scale

The fundamental approach to methodology is to research by design. Figure (4) explains this research framework where; exploring broad ideas at the urban scale, the 1st literature is used to find a new urban paradigm defining the research aim, while investigations at the neighbourhood scale to find a research gap then leads to 2nd literature findings at the architectural scale. These findings are first analysed with design to form the criteria for case-studies. Using findings from these cases and theories, we find the necessary spatial parameters to reimagine suburbia. Interpreting this approach spatially, figure (4.1) shows the concepts explored at each scale. From urban form and imageability at the urban to the house and street at the neighbourhood and the boundaries between public and private spaces at the building scale. Here the latter forms the hypothesis of this research. We explore how the hierarchy of spaces and the neighbourhood image can transform a space into a place.

URBAN FORM AND IMAGEABILITY

Shape of a neighbourhood and the degree of social cohesion

Jan Gehl said, "Only architecture that considers the human scale and interaction is successful architecture." Life in a city is the measure of interactions it sees every day and thereby becomes the character of the place. This behaviour is equated as: B = f (P, E), where B is the behaviour then P is the person and E is the environment. [8] Thus assuming that the image of the city is a sum of social interactions and the environment therefore perceived as the behaviour of that place. Assuming this, (good) behaviour becomes social cohesion or the lack thereof that contributes to the sense of place and evokes an image giving it a cohesive or a divided character accordingly. And because the image of the city is predominantly defined by its visual elements, a look at the relevance of the spatial relationship between imageability and the built environment forms the hypothesis - would the shape of a neighbourhood affect the degree of social cohesion?

Communities on the edge: socio-spatial character

Looking at shifting boundaries on the urban-rural interface, Table (1) lists out urban form paradigms from compact city to urban sprawls and the spatial behaviour they exhibit. All these general city models envisaged the dissolution of urban-dwelling typologies which had a direct connection to the street and thus architecturally defined public spaces[9]. The housing typologies thus produced, have had an indirect effect on the behaviour of that place and direct relation to the imageability. As the suburban street character changed from compact terrace housing to detached setback with garden- open city planning following the green city movement; the advent of perimeter blocks was an attempt to bring back the continuity of the street and opening up the resultant courtyard as enclosed semi-public spaces[10]. This spatial relationship of the urban fabric becomes the socio-spatial character of that place defined by the interactions between the built environment and the physical environment: how the building relates to the urban structure and vice versa, thus changing the townscape. Therefore termed 'Micro-urbanism', is a way to explore the possibilities of boundaries between public and private space by redefining the threshold conditions at a finer grain and enhance interactions between residents.[11] Relatively, communal living could then provide the necessary platform where the boundaries between the urban form and the building create these opportune spaces to harmoniously maneuver the hierarchy of the private - semi-public - communal spaces.

Urban form	Design attributes	Spatial behaviour	References
Compact cities	- Self-sufficient - Dense urban areas	Walkable areas Easy access to amenities The high cost of living	Kotharkar et.al 2014
Garden cities	- Low density - Self-contained - Surrounded by green belts	More personal space More green space	Jacobs, 1961
Neighbourhood unit	- Sub-divide the city - Smaller cohesive units	Closed off gated community	C. perry, 1929
Perimeter housing	- strong outward edge - interlocking private gardens	- public front - private open space at the back - consistent front/back distinction	Bentley et al. 1985
Garden suburbs	- same as garden cities without the industrial elements - Garden enclaves, garden villages on the periphery	- connected to but away from the city - a precursor to satellite towns	Stern et.al 2013
Edge cites	- suburban retail and employment centres	- grow exponentially as urban sprawl	Lang 2003
Edgeless cities	- random low density - use-segregated development	- lacking the physical definition of an edge	Lang 2003
Polycentric cities	- low density -metropolitan areas	- several city centres spreading out	Lang 2003
Communal housing typologies	- affordable economy through sharing of services and communal areas	- living together -diverse communities - social interactions with mutual support, care and security	Vestbro 2010

Table 12 Urban form paradigms

CONCEPT - REIMAGINING SUBURBIA - URBAN DESIGN PROPOSAL

Understanding these various paradigms figure. (5(a)) puts the findings from the literature together to conceptualise a neighbourhood strategy for a new paradigm. Reiterating the concept of garden cities, where green belts can regulate the land use and help control the way the city grows out. Continuous Productive Urban Landscapes (CPULs) is a concept derived from productive landscapes by identifying the green spaces in the city and connect them as food corridors to feed the city[12].

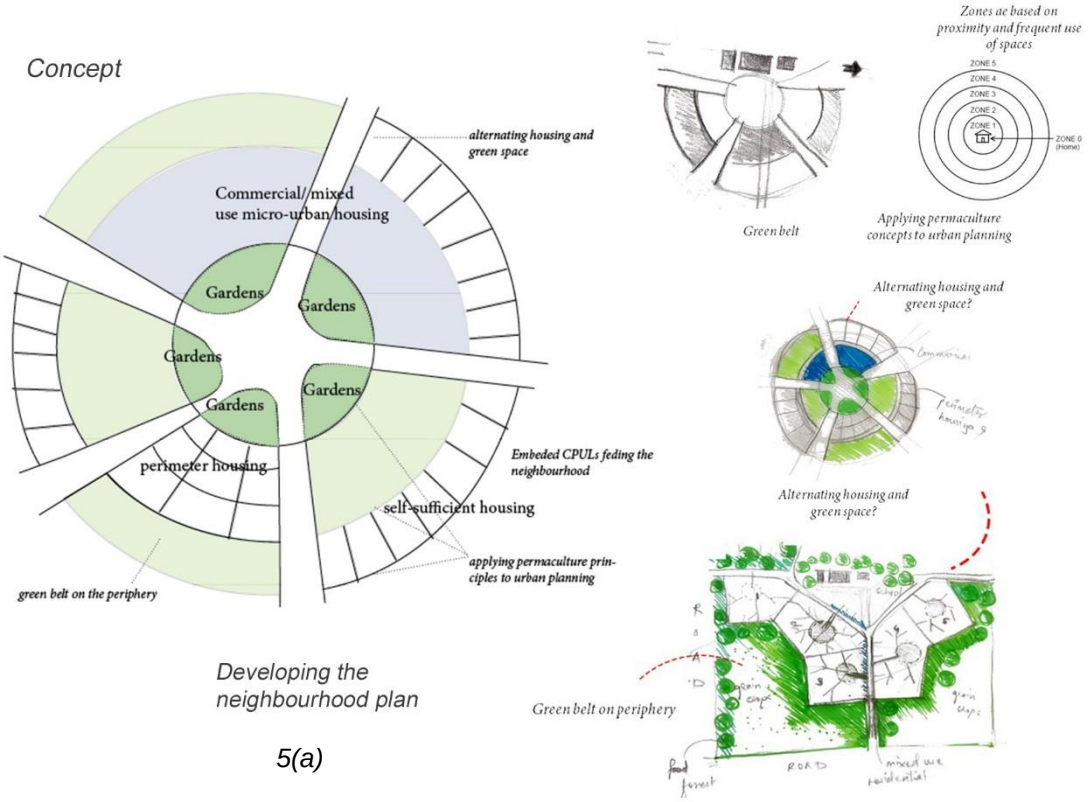


Figure 5. Concept for a new suburban paradigm (using findings from literature)

Testing the design site, figure. (5(b)) goes on to develop this concept at the neighbourhood scale. Green belt agriculture on the periphery and embedded CPULs imagine the city to grow with the foodscape by employing edible landscaping planning systems. Permaculture, a multidisciplinary landscaping system-based planning rooted in horticulture and agroforestry is applied to different scales from home gardens to city blocks to farms[13]. Zero-acreage farming also known as vertical farming is seen in the form of rooftop gardens, kitchen gardens, community farms. With 5 housing typologies clustered around growing spaces, a farm shop selling local produce, farmlands on the periphery and a hydroponics indoor farm form a food cycle of grow- sell- eat (see fig. 2).

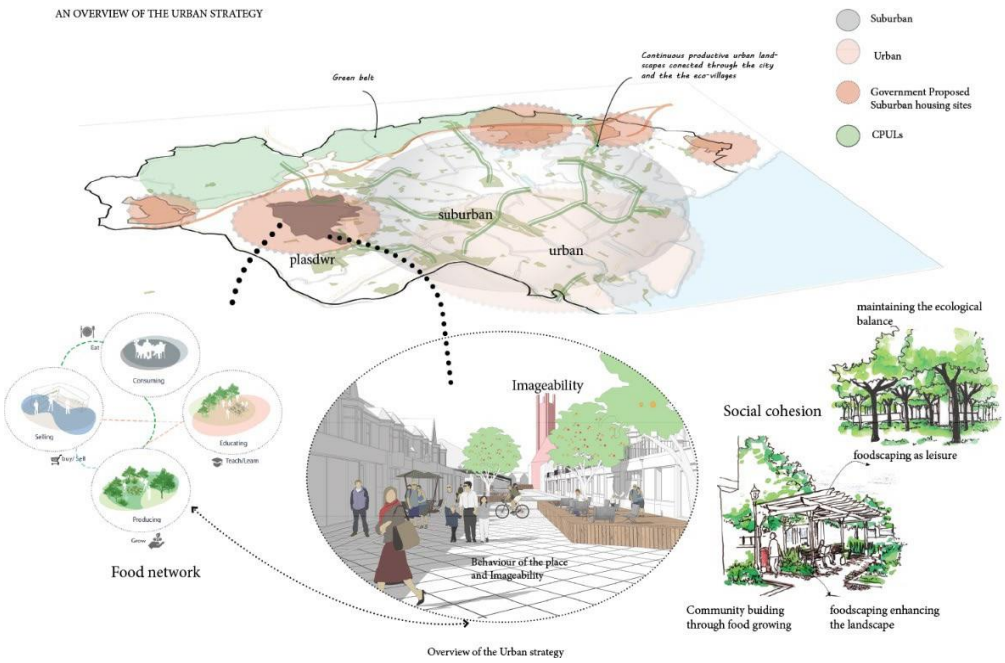


Figure 6. Cardiff city map reimagined.

To envision the wider city context, the framework imagines for a polycentric edge cities concept with suburban eco - villages imagined as a food-producing network becoming a recreation aspect to bring people to the suburbs not just for the convenience of the place and thus reducing the economic and transport dependency on the urban areas. When applied at the city of Cardiff, UK, figure. (6) attempts to answer the question of how foodscaping can reimagine suburbia at the urban scale.

HOUSE AND THE STREET

Research Gap

Reflecting on this newfound image with context to the architectural scale, the research question is broken down into two sub-questions; 1) How does foodscaping help in bringing people together? and 2) Can foodscaping help in place-making and thus changing the identity of suburbia? Further reflecting leads to the following hypotheses to be analysed:

- Socio- spatial characteristics of the boundaries between the residential building and the neighbourhood
- the use of co-gardens to study the user group interactions and bring about social cohesion between neighbours.

Since micro-urbanism explores the relationship between the inside of a building and the outside, creating the public and private hierarchy through communal living and communal food growing. Thus, assuming that the gap lies in the design of boundaries of public, private, and semi-public spaces in the housing context to redefine the image.

Between Space and Place

Reiterating that places with a strong identity help to enhance community awareness and bonding it can be assumed that social cohesion contributes to place identity. The collective perceptions of place are the ‘social imageability’. Which builds upon the argument that the boundaries in-between space (housing)

and the place (neighbourhood) are important in defining the image; and foodscaping might be this medium that alters these boundaries to achieve a hierarchy of public to private spaces.
Sense of place is about the relationship between human beings and spatial settings [14]. As such, space becomes a place when it has meaning. The meaning of a place is created by users and inhabitants in the process of using and living in it.[15] Recognizing this use of space in the three levels of privacy, figure. (7) explores how this interaction might happen in the hierarchy of spaces. We find that the in-between spaces or more so transitional spaces are important in defining the degree of interactions. The level from public to private is defined through the degrees of access (paths), interest (edges that provide views) and agency (nodes as meeting points). These spatial attributes are thus outlined in Table (2).

Third Place and Fourth Place

Figure 7. Testing literature with Design

Oldenberg defines third places as the places where you relax in public and encounter familiar faces and make new acquaintances. Whereas fourth place is the intermediate space located inside the third place, publicly accessible semi-public space[16]. A lot of active interaction such as chance happenings, friends and acquaintances take place in the fourth place.[17] Fig (7) investigates the hierarchy of spaces at the design site within one of the clusters as a co-housing unit, where intermediate transitional spaces become the third place. As the activities defining that informal social space give it meaning, leading the user towards identifying the space as a place. Within this place, informal pockets of 'fourth space' are identified around the props and edges where the informal interactions are likely to happen. Thus, the degree of social cohesion depends on the spatial attributes of the third and fourth spaces.

Nature of Enclosure and Edge Character (Between Mass and Space)

Complex forms can create simple exterior spaces, thus making the viewer aware of the purity of the form, with an inward-oriented exterior space that becomes dominant. Whereas simple architectural forms can be used to create complex exterior spaces, to perceive a dynamic space, making the mass

dominant. [18]Because they are planar, building facades read as hard spatial edges; the closer and more continuous the edge, the more definite the enclosure.[19] Following this relationship between mass and space, in figure (7) the mass cluster lacks the offsets to form alcoves. These form a dominant space creating a series of alcoves.[19] These alcoves could create threshold spaces for chance encounters. As the paths are misaligned, attention is drawn to closed edges reducing the spatial enclosure as analysed in figure. (7). Forcefully defined space can gain a permeable edge with plant material either as architectonic or naturalistic.

Likewise, the plan form of the edge affects the degree of enclosure, visual impact and spatial character. According to Gehl's 'edge effect' theory, people prefer to sit or stand on the edges initially, and once they are fully occupied, they tend to move inwards[19]. The edge effect exists because people prefer to sit in areas facing the pedestrian flow, and therefore the location on the boundary of the public spaces will provide the best views, with extensive and richer visual fields.[20]

Elements	Spatial definition (Literature findings)	Nature of interactions (findings from design tests) in fourth space	References
Thresholds	The immediate interface between the inside and the outside of a building	Boundaries accessible to public and private space	Psillidis, 2006
Nodes	- Meeting points at dominant space - Courtyards	Public to Semi-public space	Aelbrecht, 2016
Paths	Streets	Transition space Rate of flow Approach	Aelbrecht, 2016
Props	spaces near activities Furniture	Informal semi-private space	Aelbrecht, 2016
Edges	Functions as enclosure Backdrop and enframement	Soft edges Semi-private frontage	Gehl, 1987

Table 13 Attributes of third place

With these theories in mind, figure. (8) understands the nature of interactions within the boundaries of semi-public to semi- private. This reveals the surrounding spatial elements which should be paid attention to. Figure. (8) tests the design to find alternatives for possible interaction thresholds as a semi-private roof garden, semi-public with threshold spaces as the core and stepped gardens for visual connections and interactions at different levels.

Attributes of Third Place
Nature of interactions (findings from design tests) in fourth space

- Thresholds = Accessible Boundaries
- Nodes = Meeting points
- Paths = transition spaces
- Props = informal semi-private spaces
- Edges = soft / semi-private frontage

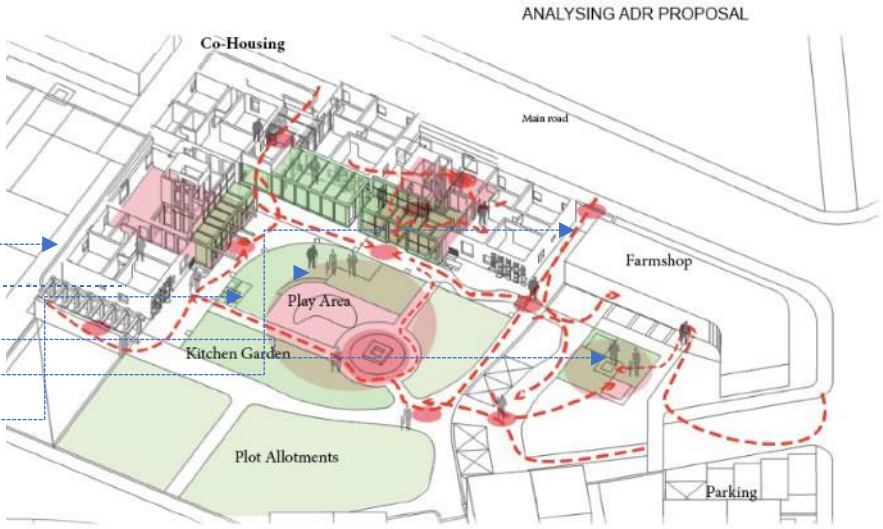


Figure 8. Testing design with theories

	Paths	Open spaces	References
Safety			
Eyes on the street	Shops on the street act as natural surveillance		Jacobs, 1961
Sense of enclosure	Be open on one side and visually accessible from all locations		Carmona, 2012
	The perceived enclosure is maximised when façades are continuous or when significant breaks in the architectonic edge		Motloch, 1990
Amenity			
Light and shadow	Some overhead cover	Open space or adjacent to open spaces	Layne, 2009
	Variation in light (sun and shade)	Trees provide shade in the hot times of the day	
Seating	Appropriate seating		Layne, 2009
Visual connection	Views into and out of spaces		Layne, 209
Services	Foods and drinks nearby (cafes, restaurants, eateries)		Memarovic, 2014
Multiple activities			
Lively	Varied passive and active activities	People present within the space but not crowded	Gehl, 2011 Layne, 2009
Diversity	Diversity of activities and options		Layne, 2009
Sense of belonging			
Personalisation	Advertisement boards, decorative features, shading structures and chairs, flower box		Layne 2009
Sense of place	Familiar with people, objects and pathways		Carmona, 2012
	Familiar with sounds, smells and sights		Carmona, 2012

Table 3 criteria for social cohesion; analysed with case-studies[21]

CASE-STUDY FINDINGS[21]

Tools of analysis	Ashley vale Neighbourhood unit (suburban scale)	Agrocite Community garden (community scale)	CW Delft House and street (arch. Scale)
Physical parameters			
Sense of enclosure	Maximum enclosure with porous façade Accessible from all locations	Enclosed on one side	C- shaped buildings enclosed around growing spaces
Eye on street	From the café City farm is bound by a low fence but viewable from two sides.	The public front is the façade of the building	The public face and the entrance differ for each cluster
communication			
visual connection	Lack of views into growing spaces/ gardens makes people occupy the edges	Views into growing spaces from kitchens	Views into growing spaces from kitchens
activity levels	High around edges	High around boundaries between growing and cooking spaces	High around courtyards
Spatial organization			
Mass- space dynamic	Segregated	Linear	Compact
Nodes	City farm, Café and garden, play area	Kitchen space and play area	Courtyards
Edges	Paths occupied around farm, café and garden	Boundaries between spaces	Paths around courtyards, vegetation as a porous edge
Collective identity			
personalization	Play areas, café, plant nursery, group activities for gardening made available as a recreation place.	Informal gathering place, Neighbours cook together with fresh produce	Benches, chairs in courtyards, chicken coops
Sense of place	Landmark- not usually found in the city Attracts people from greater distances.	Inviting communal space for neighbours	Well-connected within the residents Conflicts with the image as perceived by surrounding neighbourhoods

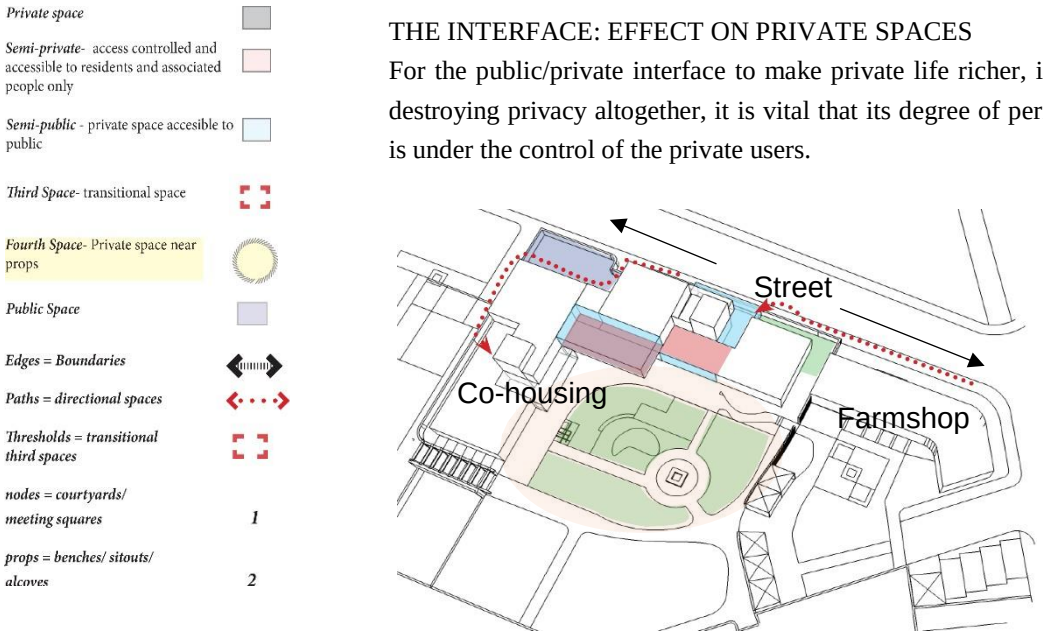
Table 4 case-study findings for the house and the street

DESIGN TESTS

Summarizing findings from case studies [21]as outlined in Table 4, the design is tested again. The mass space relationship, approach to and from the space, and the use of plant material with these elements affects the degree of enclosure, visual impact and spatial character of the place. The level from public

to private is defined through the degrees of access (paths), interest (edges that provide views) and agency (nodes as meeting points). Therefore, with context to the co-housing cluster, the criteria for testing the design would be to redefine the boundaries to provide access to green space. Entering through the courtyard, the public face along the street becomes the back of the building with less active façade; while increasing the backyard garden, results in lack of connectivity with the kitchen and the growing space (see figure. 7) However, entering on the street front, with the integrated greenhouse results in the back of the house opening into the courtyard with views from the communal kitchen/dining. (see fig. 9(a)).

Further exploring these interventions with foodscaping elements defines the architectural fabric to create an active and cohesive space at the boundaries (fig 9 (b)). Defining edges with the plant material brings out more possibilities for a porous enclosure and legibility that can bring out the spatial hierarchy for the threshold spaces between the inside and outside of the building. The courtyard then becomes the third space, where edges, alcoves and props like seating and trees become the fourth spaces for opportune chance happenings.



THE INTERFACE: EFFECT ON PRIVATE SPACES

For the public/private interface to make private life richer, instead of destroying privacy altogether, it is vital that its degree of permeability is under the control of the private users.

Figure 9(a). Design testing

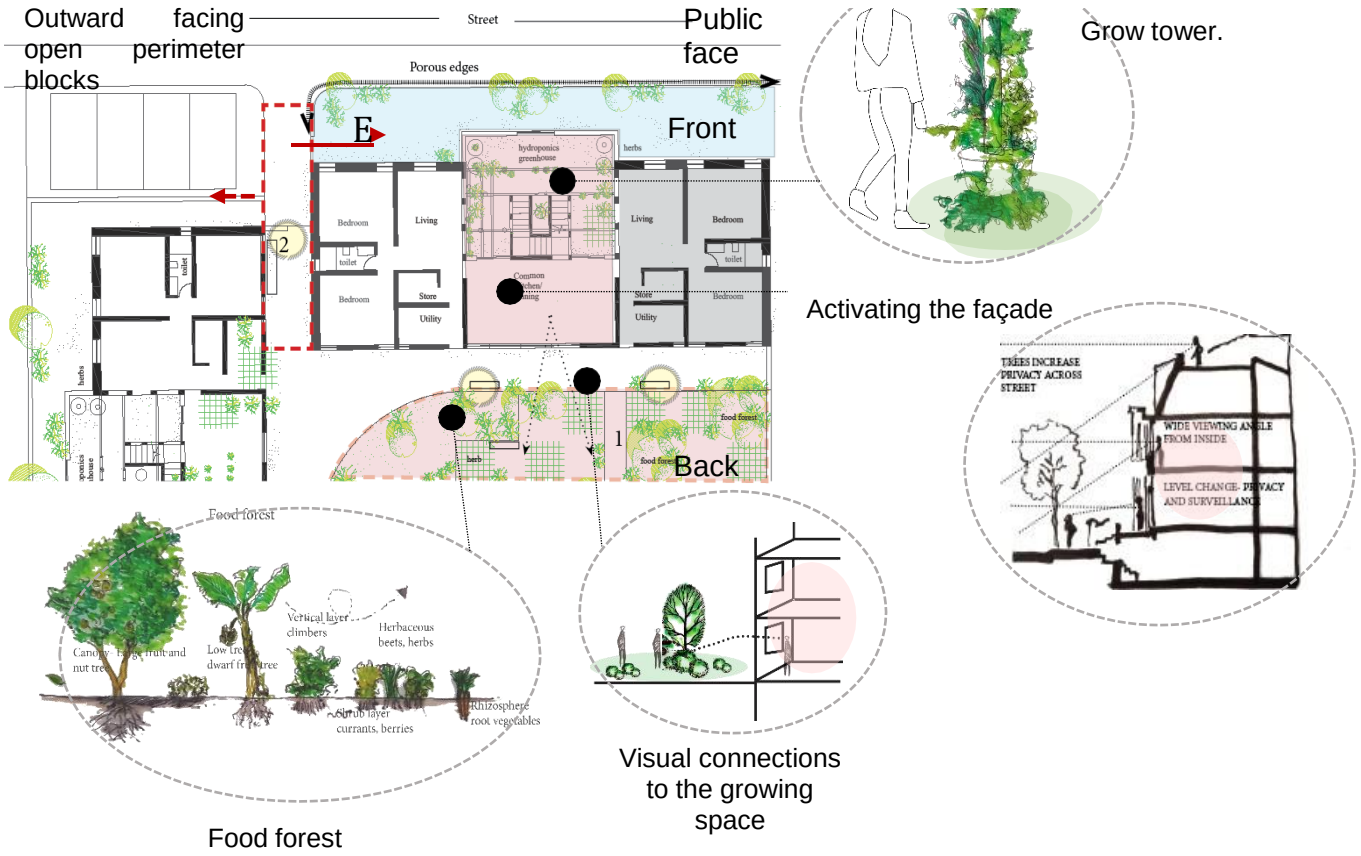


Figure 9(b). Design test details: outward facing open perimeter block

DISCUSSION

To summarize, the relationship between the house and the street depends on the spatial hierarchy. The threshold spaces determine how space becomes a place. The degree of interactions at these thresholds

forms the neighbourhood image. In conclusion, the spatial organization of the building affects the outdoor spaces, which defines the house and street relationship and the neighbourhood image that therefore comes with it.

The density is a key factor in the social cohesion of a place; because a certain degree of density is essential in the cohesiveness of a neighbourhood, giving opportunities for interaction. And that the density of the urban fabric tends to be the deciding factor on the compactness or the expansiveness that the city grows into. Concepts like micro-urbanism could prove essential in filling these gaps spatially by understanding how people use the domestic space and the degree of social interaction that proves instrumental in the cohesive functioning of the neighbourhood and the sense of that place. And while cohabitation, communal living, co-housing are all subtle variations for sharing the services and living an environmentally friendly life, they are indeed imbued with a sense of togetherness.

CONCLUSION

Social cohesion contributes to place identity. Space thus becomes a place, depending on the nature and degree of the activities that give it meaning. Use of the domestic space and the degree of social interaction proves instrumental in the cohesive functioning of the neighbourhood and in-turn the sense of that place. There are more possibilities at co-housing boundaries where the hierarchy of spaces is fluid and there are more thresholds where one can bump into people. And although cohousing may not be attractive for everyone with the many possibilities for ownership conflicts; but applying spatial attributes from the co-housing typology might result in more interactive residential models, setting a healthy living trend for not just a sustainable suburbia, but as prototype eco-communities growing together.

NOTES

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THE DISSAPEARANCE OF ARCHITECTURAL UTOPIAS

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UTOPIA AS A CRITICAL METHOD

Architecture can be seen as a speculative discipline. Speculative architectural projects can be identified as those that envision potential futures not only through new structures and changes in the (built) environment, but also by proposing change in the structure and workings of society. These projects take into consideration not only how new technologies, scientific discoveries, and economic developments can shape the space around us, but also investigate and speculate upon the consequences of these changes for the inhabitants. Within the scope of this paper, these projects are defined as utopian.

Utopia as a genre first appears in literature, in the 1516 fictional and political book by Thomas More named *Libellus vere aureus, nec minus salutaris quam festivus, de optimo rei publicae statu deque nova insula Utopia* or shortly *Utopia*. Since its first appearance in literature, it has been adopted by various other artistic fields, architecture being one of them. While literary utopias propose ideal societies where the focus is set on the betterment (or critique) of human life through proposing changes in the way that social, political, economic and spatial systems operate, architectural utopias fantasize about various alternative forms of spatial orders, which form ideal cities and all-encompassing infrastructural systems whose aim is the optimal organization of human life on all its levels. Today, the utopian genre is still strongly present in the field of literature, but the use of utopia as a method for proposing and speculating on potential futures in architecture has slowly declined since the modernist period and has until today almost completely vanished. Until the 1970s, architecture and literature were equally active in employing the utopian genre to propose, test and critique society. But somewhere along the line, architecture has stopped in its tracks, while literary utopia flourishes. Drawing inspiration from various questions of our time, utopian fiction still plays out numerous scenarios, affecting both the social and spatial aspects of life, while what is considered as contemporary architectural utopias is mostly focused on creating un-critical, fixed images of futuristic and/or apocalyptic landscapes.

In order to start the discussion into the possible reasons for the disappearance of contemporary architectural utopias, this paper will examine two architectural projects from the 1970s which are considered as a few of the last contemporary architectural utopias, namely Superstudio's *12 Ideal Cities* (or *12 Cautionary Tales for Christmas*) and OMA's *Exodus, or The Voluntary Prisoners of Architecture.* By examining the two works through focusing on their utopian performativity, the paper will analyse their thematic, the mediums and methods of their production and the contexts in which they were created and disseminated with the aim of comparing their creative methods and their response to their historical context.

12 CITIES AND 10 DISTRICTS

Superstudio's *12 Ideal Cities* are a collection of 12 (or 13) short stories. The project was first presented as a multi-media event at the Mana gallery in Rome (November 1971)[1], and was subsequently published, in English, in the *Architectural Design* magazine (December 1971) and in Italian in the *Casabella* magazine (January 1972). While the *AD* version contained 12 proposals described through text and visual material, the *Casabella* version was extended with an additional 13th city which was described only through text. Each story describes an imaginary city based on one or several spatial or societal topics which were relevant in that period. The proposed "ideal" cities develop these topics to the extreme within an isolated and enclosed system. Described within the subtitle of the project as "Premonitions of the Mystical Rebirth of Urbanism"[2], each story represents a parody, or rather, a critical exaggeration of an existing urban planning method. For example, the Conical Terraced City "refers to the city of corporate work and office buildings, where the goal of inhabitants is to reach the highest level"[3] or the Continuous Production Conveyor Belt City which "refers to the city of accelerated property speculation" [4]. The Conical Terraced City would, from today's perspective, represent the pyramid scheme where inhabitants of the upper levels command those on the lower ones to perform various chores and activities for them. The commands trickle downward to the base layer where the inhabitants end up becoming completely overwhelmed. The inhabitants strive to perpetually move upwards within a city which provides no physical possibility for it – "The levels are in no way connected; no architectural structure furnishes a hold for climbing; the terraces forming the steps between levels have no parapet."[5] This results in violence and murder where the bodies of the fallen co-inhabitants are literally used to achieve upward mobility.

While Superstudio's *12 Ideal Cities* can be seen as a collection of parodies on urban planning, OMA's *Exodus, or the Voluntary Prisoners of Architecture* can be seen as parodies on various city functions. The project was originally created for the competition *The City as Significant Environment* organized by the *Casabella* magazine (June 1973). It was subsequently published as part of the introductory "Foreplay" chapter of the *S, M, L, XL*[6] compendium, together with the appendix projects featured in *Delirious New York*. Designed as "The Strip" – a city within a city – a "Good Half" of London inside the "Bad Half" [7], the most well-known version of the project depicts an enclosed, linear city where two parallel walls enclose ten square districts – each containing a specific program. However, as De Cauter and Heynen reveal in their text "The Exodus Machine" [8], an earlier manuscript also contained an eleventh square which housed the "Square of the Captive Globe", which was subsequently removed, only to be included as one of the appendix projects in *Delirious New York*. The diverse programmes which are placed within the squares can, as De Cauter and Heynen explain, "be read as extreme variants of one or another known conventional (architectural) use" [9]. Each of the squares exaggerates upon, in a manner similar to that of Superstudio, a specific topic or a set of topics related to various human social and spatial conditions. At the "Tip of the Strip", for instance, architectural war is waged daily between London's existing built environment and that of the Strip. It is a zone of constant and often violent innovation where the old is destroyed and replaced with the new which can be seen as a parallel various radical urban regeneration or renovation projects. It depicts a continuous struggle between the value of the old and the new and the continuous needs of a city to innovate itself through whatever means necessary. The "Institute of Biological Transaction" tackles the topics of health, healing, the life cycle and remembrance. It is divided into five parts – four areas separated by a cruciform structure: the hospital which is dedicated to "abolish the compulsion to heal"[10], a medical boulevard where the ill move on a conveyor belt through a series of doctor's pavilions, eventually ending up at the cemetery (as the doctors don't, in fact, heal any of the diseases), the Three Palaces of Birth in which the "statistical balance

between births and deaths" [11] is maintained, and a fourth area where mental patients are placed and displayed as "part of a well-produced exhibition of their delusions, sustained by the most advanced medical equipment"[12]. The cruciform structure contains the archived documentation of all the Prisoners, creating a "statistical treasure" which "produces not only instant biographies of the dead in seconds, but also premature biographies of the living."[13]

UTOPIAN CONDITIONS

It is striking to realize that Superstudio's and, even more so, OMA's early projects are the most recent ones we consider when discussing architectural utopias. Taking into account that both projects were created fifty years ago, two questions arise. Firstly, are those truly the last remnants of architectural projects which include in their design not only futuristic or alternative visions of the built environment, but also the social, political, economic, and/or cultural implications of those visions? And secondly, why do we still consider these projects relevant today? In attempting to answer these questions, I continue to investigate some similarities between the two projects, as well as the conditions and methods in which they were developed, and consequently, how those methods and conditions differ from what are sometimes labelled as utopian projects today.

Contextual Topics

The first important commonality of the two projects is the choice of contextual topics which the projects address. Both projects are a collection of stories, rather than one cohesive one. This allows the authors to address the complexity of contemporary society and propose critical alternatives or warnings in regard to the status quo. Although the projects were created in the seventies, this approach could still be relevant today. As Zaha Hadid and Patrick Schumacher concisely described our condition in a text related to their *Latent Utopias* publication - "In the last 10-15 years the discourse of the architectural avant-garde was driven by the principle of negativity (creative destruction). Concepts like de-construction, dis-location, de-coding and de-territorialisation have been dominating the scene. […] It no longer makes sense to articulate the Zeitgeist. […] The total social process has become far to complex to be anticipated within a single vision and utopian image. Other strategies are called for." [14] Fragmentation and deconstruction of all elements of society and the built environment render a creation of total visions impossible, but perhaps also unnecessary – and both projects acknowledge that and work within the condition in order to reflect on its multiple segments. While it would be impossible to weave the complexity of the contemporary condition into one cohesive architectural narrative, addressing this condition through a series of independent or correlated segments is much more appropriate. By embracing the fragmentation of their historical context and employing it as a creative method, both *12 Ideal Cities* and *Exodus* manage to cover a wide array of pertinent conditions through critically exaggerating them and reaching a utopian counterproposal. However, the fragmentation and the multiplicity of topics and conditions which are present in our contemporary society are not anymore integrated in today's architectural projects, even those which strive to be utopian. Rather, the projects focus only on a small set of conditions, disregarding the wider picture. We often find examples of ecological utopias frequently developed only through an exaggerated use of greenery, or extra-terrestrial habitats focusing only on innovative forms and material usage. While such narrowly focused projects were perhaps more appropriate in other historical periods where there was only one (or at least a very small number) of driving forces in our society, today it is not very productive, as it tends to propose radical solutions for one, while ignoring all other aspects of life.

Mediums of Representation

The second relevant topic is one of representation, or rather the representational mediums the projects use. Both projects were created through the use of various mediums: namely drawings, collages, schemes and texts. They borrow methods and elements from different creative fields such as art and literature in order to vividly depict the complexity of the utopian proposals. The multiplicity of mediums through which the projects are presented is also relevant in regard to interdisciplinarity. Utopian works require a high level of interdisciplinarity woven into the project in order to cover complex societal topics. Both the *12 Ideal Cities* project and *Exodus* touch upon different political, economic and scientific topics within their narratives. But instead of allowing topics outside of architecture to drive the projects, they use them as productive "quotations" enriching their narratives, while simultaneously using the inherent projective, speculative and imaginative tools of the architectural profession. This method, described as "interdisciplinary quotation" was elaborated by Demetri Porphyrios's text in regard to the early work of OMA, but it can also be related to the projects of Superstudio:

"Koolhaas and Zenghelis were establishing an alliance at once tangled and extremely vague with a number of nonarchitectural disciplines: literature, painting and psychology. The innumerable references […] are sure indices of minds that have accepted the notion of interdisciplinary quotation. In this way they outwitted in advance the positivist attempts of their contemporaries to insert architecture's chronology within that of science, technology, or consumerism, and sanctioned instead the inverse endeavour to align the experience that man has of things with the knowledge he has acquired of them through a psychological internalization."[15]

Combining different artistic mediums and the existence of differing visual and textual outputs through which the projects are presented and described is often missing in contemporary projects. Most focus on one or several images created through a singular method, which leave too many questions unanswered and rarely offer any critique or reflection. What is mostly missing in contemporary architectural utopians, in regard to mediums of representation are the textual narratives. While images are successful in conveying the spatial elements of utopias, texts are more than necessary to convey the societal aspects of the proposed worlds.

Presenting Utopias

The last topic is the dissemination of the two projects and the possibilities we have for sharing utopian projects today. Both projects – *12 Ideal Cities* and *Exodus* – have reached the majority of their original audience through the *Casabella* magazine, and later through various other architectural magazines and journals. These types of publications, such as *Casabella* and *Architectural Design*, were a productive platform for presenting and sharing what we today refer to as "paper architecture" - architectural projects which were created as critical exercises, without the implicit aim of realization. However, architectural magazines and journals today focus mostly on either promoting or historicizing already built work, while allowing little or no room for speculative and not yet critically acclaimed projects. Theoretical and experimental projects are mostly reserved only for specialized websites, competitions and blogs which often only focus on their graphic representation and often fail to acknowledge their critical potential.

While the era of the architectural magazine is perhaps behind us, another opportunity presents itself for the dissemination of utopian or other types of speculative architectural projects. A locus for creating a discussion around these proposals was also already suggested in the aforementioned text by Hadid and Schumacher, where they state that our current circumstances perhaps require "public exhibitions as a forum of exposure and a testing ground."[16] The use of exhibitions for presenting utopian projects is by no means a novelty. As already mentioned, Superstudio's *12 Ideal Cities* were, in fact, first presented as multimedia exhibition event at the Mana Gallery in Rome. Given the multiple mediums and methods

through which these projects are created, the possibilities that exhibitions offer are more than productive for bringing utopian proposals closer to a wider audience. And given the ever-growing number of various architectural events, exhibitions, biennials and triennials, all working with overarching topics relevant to our contemporary condition, the possibilities for new utopian experimentations seem to be endless.

CONTEMPORARY CONDITION – TOWARDS A CONCLUSION

While the number of possible platforms and outputs through which one could present and disseminate contemporary architectural utopias seems to be growing monthly, the production time for creating these projects is becoming shorter and shorter. And therefore, maybe one of the most impactful differences in the ways in which Superstudio's and OMA's (early) projects were created is – time. The time needed to actually conceive and develop projects which define, tackle, critique and propose solutions for various social and spatial conditions is much longer than the time needed to create an average commercial project. Throughout history, utopian projects were often created in times of crisis, when work was scarce. Although these were in no way favourable conditions, they provided architects with time to reflect and devise utopian visions. While today we create new projects at a staggering rate, we rarely find time to stop and reflect on the conditions that we live in, let alone attempt to develop self-initiated critical counterproposals. Even though the time of totalizing visions is over, utopia can and should still be used in creative fields as a critical method through which we reflect on our own society. But unlike historical utopias, the contemporary ones need to address a wide variety of topics and issues embedded in our society. In order to do that we need to use architectural tools which allow us to imagine and speculate on possible futures and alternatives, without the need to solve the issues of all the affected disciplines. We also need to find a medium or a location where these projects could be discussed in productive ways and where their insight could be examined. And most importantly, we need to find time for utopian projects – time for imagining and speculating on alternative futures which take into consideration various elements of our contemporary context.

NOTES

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[3] Fernando Quesada, “Superstudio 1966-73. From the World without Objects to the Universal Grid”, *Footprint – Defying the Avant-Garde Logic: Architecture, Populism, and Mass Culture* (2011): 25
[4] Fernando Quesada, “Superstudio 1966-73. From the World without Objects to the Universal Grid”, *Footprint – Defying the Avant-Garde Logic: Architecture, Populism, and Mass Culture* (2011): 25
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[6] OMA, Rem Koolhaas and Bruce Mau, *S, M, L, XL* (New York: The Monacelli Press, 1995)
[7] OMA, Rem Koolhaas and Bruce Mau, “Exodus, or the Voluntary Prisoners of Architecture”, *S, M, L, XL* (New York: The Monacelli Press, 1995), 5
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[9] Ibid 8, 265
[10] OMA, Rem Koolhaas and Bruce Mau, “Exodus, or the Voluntary Prisoners of Architecture”, *S, M, L, XL* (New York: The Monacelli Press, 1995), 16
[11] Ibid.10, 17
[12] Ibid.10, 17
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[14] Zaha Hadid, Patrick Schumacher, *Latent Utopias: Experiments Within Contemporary Architecture* (Vienna, New York: Springer Verlag, 2002), 1
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[16] Ibid.14, 1

THE CONSTRUCTION OF AN URBAN FOOD SYSTEM. BARCELONA 1957-2020

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INTRODUCTION

Each city has a characteristic food system, so that for each urban form, a specific way of feeding the population can be described. In the words of Susan Parham,[1] "food spaces reflect location responsive spatial qualities which have been developed and expressed over the long term: time-tested design qualities that are argued to contribute to a food related sense of place that can be discern across many times and places".

The specific local response in Barcelona is made up by of multi-scalar system distributed homogeneously throughout the city. The most specific element that makes it up is a set of thirty-eight public food market halls, which are complemented by a private system formed by 1,997 specialty grocery stores and 2,331 supermarkets that provide fresh edibles to citizens.[2] Although percentages show a downward trend, market halls supply forty-four percent of fish and seafood, thirty-four percent of meat, and pork, and twenty-three percent of fruit and vegetables consumed in the urban kitchens.[3] The majority of Barcelonans, accustomed to buying fresh food in the immediate surroundings of their residences,[4] could do so in a market hall.[5]

The construction of food markets can be divided into two major periods, with a turning point that this research sets in 1957.[6] On the one hand, the vast majority of the nineteen markets built in Barcelona until the mid-twentieth-century is the result previous outdoor activities: as a consequence of a process undertaken during the first third of the nineteenth century, market spaces were extracted from the streets and transferred to regulated and specialised sites so that the foundations for the construction of the first market halls were laid. On the other hand, half of the markets halls active today were built late after 1957, at a time when the architectural type was in decline in most European cities. With the country under a political dictatorship, a municipal strategy was developed to expand the public market system to strengthen small commercial centralities in peripheral neighbourhoods. In many of these cases, the construction of the market hall was a milestone that preceded the services of any other facility or the arrival of public transportation systems.

The year 1957 is significant to understand this historical process of the food system construction for an extraordinary reason: it was the start of a brief period in which the construction of market halls was permitted to private stakeholders. Additionally, there are three other crucial dates from then until 2020 that must be taken into account: 1986, in the first years of the democracy after the dictatorship, when the heritage of markets was rediscovered and valued through a novel public food policy that began to be implemented, and finally; 1971, when all metropolitan wholesale food sales were concentrated in a

single market; and 1991, when a public agency was created with the specific aim of building new markets and refurbishing the existing ones.

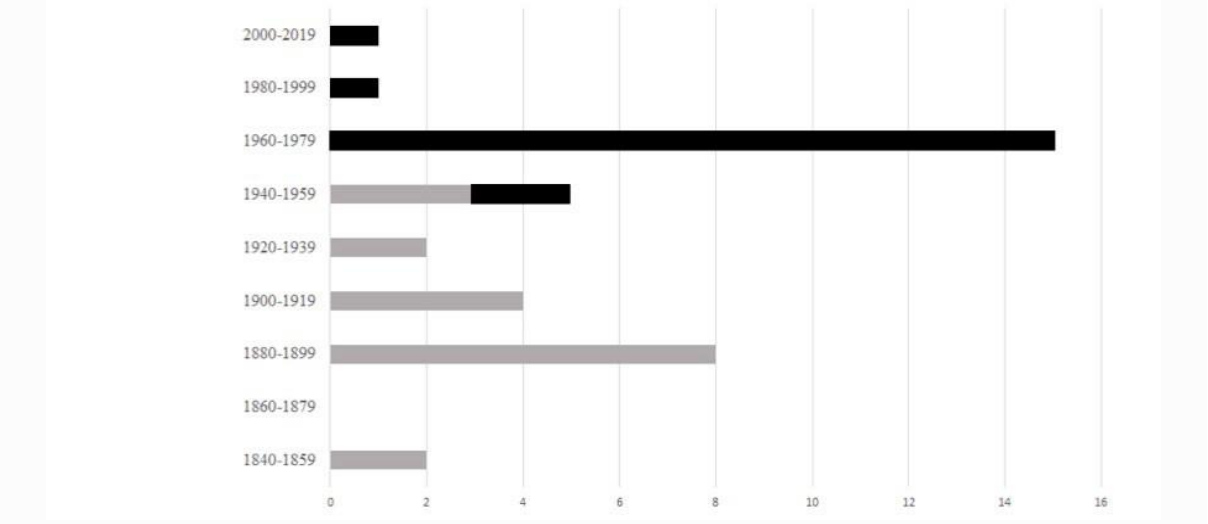

Figure 1: Number of Market Halls built per year (considering only those still in operation in 2020). Source: Authors' elaboration

NINETEEN MARKET HALLS (1957-2020)[7]

Compared to the first buildings, that were monumental architectures with steel structures, markets built in the second half of the twentieth century — when other European cities that had been equipped with public markets abandoned favoured other food supply systems[8] — are characterised by a shift to a progressive artificial indoor environment. The insertion of markets in pre-existing buildings or in small plots between dividing walls together with the drafting of a law that authorized private stakeholders to build and operate market halls under a temporary concession[9] explain the urgency with which the system was consolidated at that time.

The immediate decade of 1960s was a period of expansion of food suppliers towards more peripheral neighbourhoods and coincided with a transition from steel structure roofs to moulded reinforced concrete membranes that represented a critical review of the former architectural model that was considered depleted. Although they were designed with the aim of generating a new contemporary image, those concrete buildings were sheltered under rooftops that largely disregarded the character of old market halls: they reduced the volume of interior space and natural ventilation and, consequently, they prepared the appearance of a group of new markets housed under concrete slabs. At that time, supermarkets gradually emerged across the city and seemed to inspire a set of more odd buildings that neglected the historical memory of the first market halls.

The creation of the Barcelona Municipal Market Institute (*Institut Municipal de Mercats*, IMMB)[10] in 1991 triggered the revision of the existing market system, and after a brief period of minor interventions in the buildings, the first fundamental reforms promoted had as their main objective to combat the constant decline in sales. The systematic incorporation of other programs — as supermarkets or, later on, restaurants — within market halls to attract customers and help finance the operations resulted in a reduction in the number of stalls based on the assumption that they were oversized in number: compared with the 6,013 stalls existing by 1986, the 1,352 in 2018 represented a reduction of more than seventy-five percent.[11]

A few markets in non-central enclaves built or refurbished under the IMMB mandate represent the ultimate sophistication of food trade in terms of urban development when being hosted in mixed-use buildings. They are an example of how the domestication of ordinary food trade has reached a point where it can share roof with other activities. As a result, their architecture has moved away from monumentality without renouncing a central position in this search for a mixture of users and density of activities. In these cases, markets are part of new centralized operations, but not the main ingredients of them.

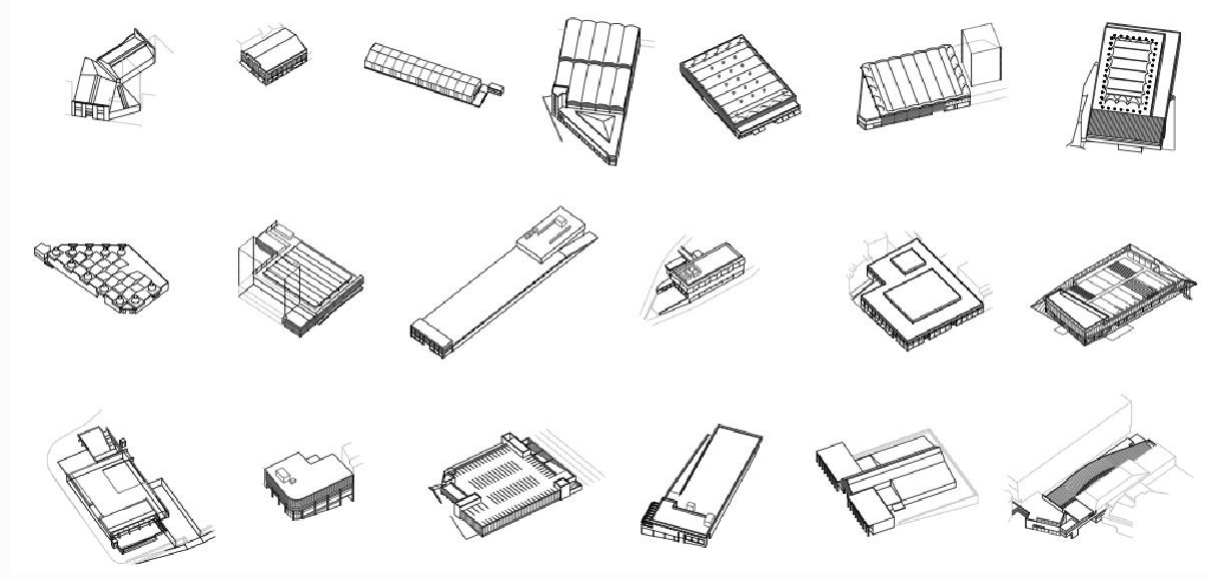

Figure 2: The Nineteen Markets Built since 1957 Still Active in 2020. Represented on the same graphic scale and sorted by date of construction. The shape of the markets explains the different ways in which, at different times, architecture has responded to the same need: to provide the city with fresh food. Source: Authors' elaboration

A PUBLIC FOOD POLICY (1986)

The actions of the IMMB must be understood covered in the drafting, five years before, in 1986, of a an urban regulation called Special Plan for Food Commercial Facilities, [12] that laid the foundations for the transformation of the food supply system whose legacy is still in force today. The new policy took advantage of the isotropic condition of markets in the urban context: market halls did not fulfil the price control function that had give rise to them in the nineteenth century, but nevertheless, their urban distribution controlled the territory. More than a network of interconnected pieces, each market supplied a specific area of influence so they could be converted into nodes of local centrality. At that time, the emergence of supermarkets and hypermarkets in peripheral locations [13] contrasted with an urban fabric where commerce was dispersed and responded to a small-scale structure. This constellation of small compounds aroused the interest of PECAB editors, who saw the opportunity to strengthen the system by intentionally distributing stores in the territory concentrating them near market halls. The idea of concentration as a tool to reinforce the system was based on the definition of the so-called polarity areas around the nodes of market halls, where the most important part of the food purchases accumulated. An ambitious reform and expansion model was implemented to make municipal markets the centre of the fresh food distribution network, which turned market halls into triggers for the regeneration of food retail premises.

At the time of the preparation of the policy, there were 15,000 registered food stores of which forty-two percent where inside the municipal markets. Numbers show that the total amount of food establishments in the city decreased by seventy-five percent in the last revision of the PECAB policy, in 2015. However, looking at what has happened inside the polarity perimeters, figures show a different trend: there was only a loss of twenty percent of the units. Quantifying this situation in the nineteen markets built between 1957 and 2013, the comparison between the number of establishments that in 1986 were included in the polarity perimeter of the PECAB of the same year (in a dark hatch in Figure 3) and those of 2019 (date of the last municipal census of activities) included in the polarity perimeter of the PECAB 2015 (the last one written, still in force in 2020, light hatch in Figure 3) shows a decrease from 244 grocery stores to 188, which implies a total twenty-three percent decrease in number.[14]

If markets had turned into a desert the food system around them until 1986, it can be sustained that thanks to PECAB policy, they managed to attract food selling establishments to make the constellation of food stores in Barcelona look like isotropic oblivious to the presence of the markets.

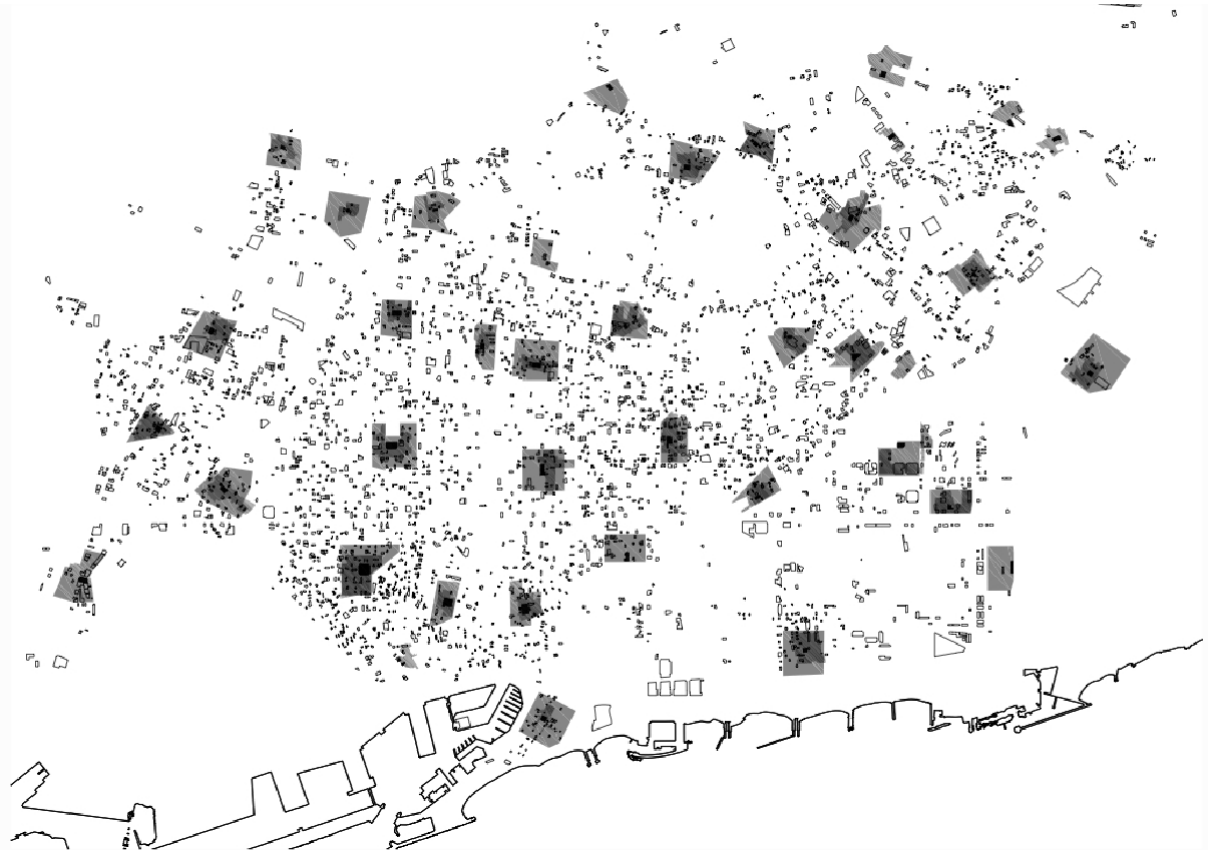

Figure 3: Food Stores in 2020 within PECAB Perimeter (light hatch, perimeter in 1986; dark hatch, perimeter in 2015). Source: Authors' elaboration

A CENTRALIZED METROPOLITAN FOOD SYSTEM (SINCE 1971)

As a result of the progressive strengthening over time of this urban infrastructure of food suppliers sustained on thirty-eight public markets, the city can be considered, with very few exceptions, a food oasis. The system expands up to eighty-nine markets within the thirty-six municipalities that make up the metropolitan area, so Barcelona has been a model for the rest of the surrounding towns that have at least one market hall located at their core.

In the same way that the distribution of food fabric characterizes the urban form, the way with which edibles are distributed, stored and exposed till they are sold also conditions the shapes of the city. Since 1971, a single wholesale market [15] has nourished the Barcelonan food system, a city that operates twenty-four hours a day with the aim of guaranteeing the supply of fresh food to citizens, with acts as a transformer that scales the global origin of edibles and whose efficiency relies in its proximity to the port. In 2017, the central market distributed 50,000 tons of meat, 69,662 tons of fish and 1,150,169 tons of fruits and vegetables, most of which were imported. The proximity to the port and land transportation infrastructures are key in this aspect in the success of this market: fifty-one percent of the distributed fish comes from abroad — mainly from France, Ireland, Great Britain and Italy — as does eighty-six percent of the fruit — from France, Ecuador, South Africa and Costa Rica, among others. [16]

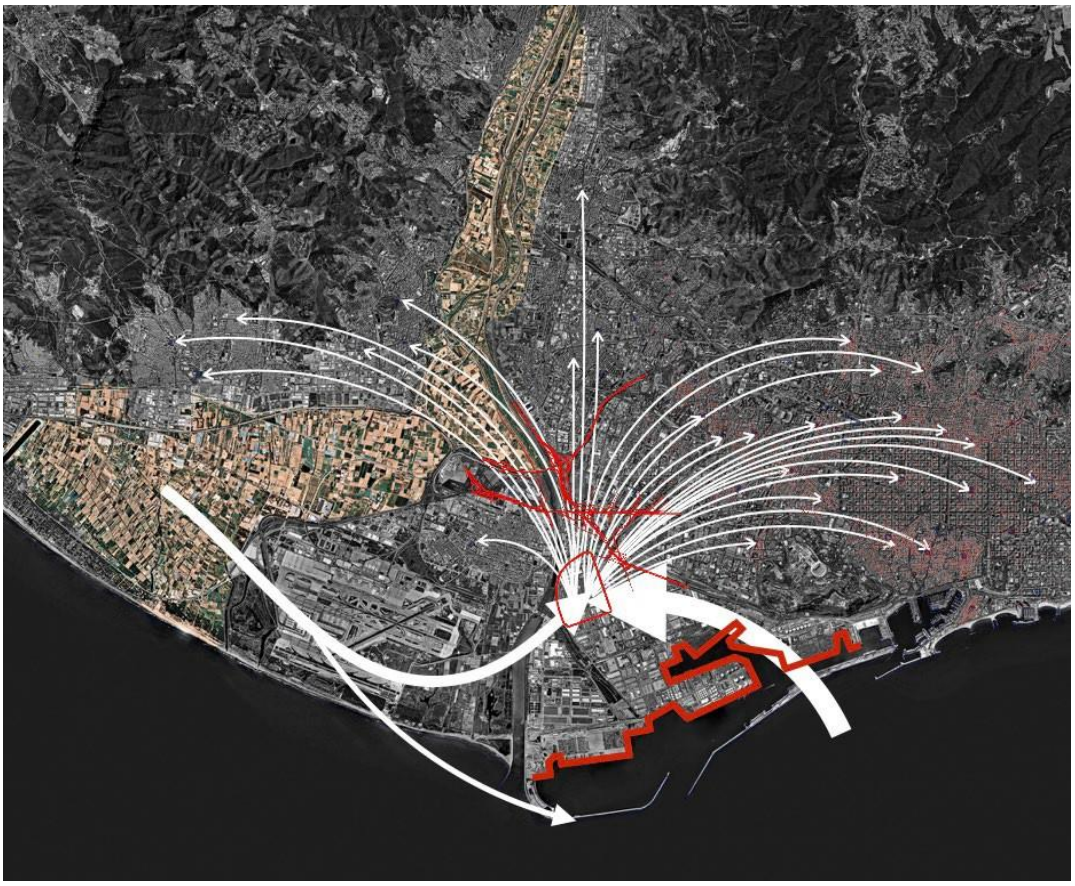

Figure 4: Short-range flows of food to Mercabarna (imported from the port, or produced in the agrarian delta of the Llobregat river); and from Mercabarna to the metropolitan markets. Source: Authors' elaboration

The wholesaler thus is an intermediate point in Barcelona's food distribution, the point of origin for the chain of the retail trade process. It acts as a transformer that scales the global origin of edibles: it imports and distributes food to market halls and stores that, in turn, supply private kitchens.

CONCLUSION

The multi-scalarity of the Barcelona food supply system is a direct consequence of a centuries-old tradition of building markets but also of a particular consolidation in the last sixty years. Changes in the system since 1957 explain a city that today is fed thanks to a large wholesaler of ninety hectares of

surface and more than eight hundred companies; thirty-eight public markets that oscillate between 562 and 6,404 meters of surface containing between seven and 173 stalls owned by private vendors; just over 2,300 supermarkets; and almost 2,000 grocery stores with an average area of 126.8m^2.[17] This wealth in quantity and surface allows multiple readings from architecture and urban form, disciplines that have implicitly contributed to the construction, transformation and consolidation of the system for 180 years; and explicitly the last six decades.

NOTES

[1] Susan Parham, *Food and urbanism: the convivial city and a sustainable future* (London and New York: Bloomsbury, 2015), 71.
[2] Calculations by the authors based on "Inventari de locals de la ciutat de Barcelona" [Inventory of Premises in the City of Barcelona], Ajuntament de Barcelona, accessed December 20, 2019, https://opendata-ajuntament.barcelona.cat/data/en/dataset/cens-activitats-comercials.
[3] Ajuntament de Barcelona, *Hàbits de consum i polaritat comercial de la ciutat de Barcelona* [Consumer Habits and Commercial Polarity of the City of Barcelona] (Barcelona: Ajuntament de Barcelona, 2018).
[4] Ajuntament de Barcelona, *Hàbits de consum i polaritat comercial de la ciutat de Barcelona*. 90.8 percent of fish, 92 percent of meat, pork, eggs and poultry, 95.4 percent of fruit and vegetables, 96.7 percent of bread and dairy products and 95 percent of other food that is consumed is bought in the same neighbourhood of residence.
[5] Forty-seven percent households (822,719) and forty-six percent of the inhabitants (1,617,289) of the city are included in this proximity perimeter, according to calculations made based on the official urban open data census, updated to May 3, 2018, "Urban data of the city blocks in Barcelona, " Ajuntament de Barcelona, accessed November 15, 2019, https://opendata-ajuntament.barcelona.cat/data/en/dataset/taula-map-illa. See also Pere Fuertes and Eulàlia Gómez-Escoda, "La forma urbana del menjar fresc = How Fresh Food Shapes Barcelona," *Quaderns d'arquitectura i urbanisme* About Buildings & Food, no. 271 (2018): 96-97.
[6] Pere Fuertes and Eulàlia Gómez-Escoda, "Supplying Barcelona. The Role of Market Halls in the construction of the Urban Food System," *Journal of Urban History*, accepted 2020.
[7] Only considering those active in 2020.
[8] Nadia Fava, Manel Guàrdia, and José Luis Oyón, "Barcelona Food Retailing and Public Markets, 1876–1936," *Urban History* 43, no. 3 (2016): 454.
[9] The exception that was maintained between 1956 and 1975, when new markets were built under private initiative until they were reversed to the public system. See Nadia Fava, Manuel Guàrdia, and José Luis Oyón. "Public versus private: Barcelona's market system, 1868–1975," *Planning Perspectives* 25, no.1 (2010): 20.
[10] The IMMB is defined with these cited words in its website: 'Created in 1991 by the Plenary Council of the Barcelona City Council, the Municipal Market Institute of Barcelona [...] is an autonomous body for the direct management and administration of municipal markets, [with capacity for the] approval of the ordinances, appointments, creation and suppression of markets and approval of major construction works [...] The actions of the IMMB actions focus on three fields: improving infrastructures and services, updating the commercial offer and incorporating commercial promotion policies'. Institut de Mercats de Barcelona, accessed March 5, 2020, https://ajuntament.barcelona.cat/mercats/ca/canal/institut-municipal-de-mercats-de-barcelona.
[11] These numbers are valid for thirteen of the nineteen markets studied in this article, since the two markets that were under construction or still to be built in 1986 have not been taken into account for the calculations and there is no information for a third one.
[12] Ajuntament de Barcelona, *PECAB, Pla especial d'equipament comercial alimentari de Barcelona* [Special Plan for Commercial Food Equipment in Barcelona] (Barcelona: Ajuntament de Barcelona, 1986).
[13] The first supermarket in Spain opened in 1957 in response to the so-called *Operación Supermercado* [Operation Supermarket] initiative undertaken by the Minister of Commerce. Two years later, in 1959, the first establishment of these characteristics in Barcelona was also a novelty because it was the first self-service food supplier built under a private management. On the other hand, the first commercial centre, opened in 1980 in the metropolitan area of Barcelona.
[14] Endnote 10 is also valid for these figures. Additionally, it must be specified that in six of the market halls, the polarity perimeter coincided with the market itself, so the number of establishments considered for 1986 is zero. Source: authors' elaboration based on the PECAB 1986 and on the Inventory of Premises in the City of Barcelona.
[15] Called Mercabarna, it represented a novelty in the metropolis for concentrating food wholesale sales, which until then had been scattered in central parts of the city, in one single place: since 1921 Born market had concentrated fruits and vegetables wholesale sales; since 1931, a former pavilion erected for the 1888 International became the wholesales fish market, which activities moved to Mercabarna in 1983; since 1891, a superblock in the Eixample grid had been the site for the municipal slaughterhouse, the Escorxador, which also moved to Mercabarna in 1979. These facts are described in more detail in Manuel Guàrdia and José Luis Oyón, "The Barcelona Market System" in *Making cities through market halls: Europe, 19th and 20th centuries*, ed. Manuel Guàrdia et al. (Barcelona:

MUHBA, 2015), 261-96; and in Manuel Guàrdia, José Luis Oyón, Sergi Garriga, and Nadia Fava, "Meat Consumption and Nutrition Transition in Barcelona, 1709–1935," *Urban History* 45, no. 2 (2018): 193–213.

[16] According to the statistical books of the wholesaler, "Informació Estadística" [Statistical Information], accesed June 15, 2020, https://www.mercabarna.es/media/upload/pdf/llibre-estadistic-fruita-mercabarna-2019_1585582434.pdfdated 2019.

[17] According to municipal data from 2017.

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Fuertes Pere, and Eulàlia Gómez-Escoda. "La forma urbana del menjar fresc = How Fresh Food Shapes Barcelona." *Quaderns d'arquitectura i urbanisme* About Buildings & Food, no. 271 (2018): 87-101. Accessed June 15, 2020. doi: 10.3846/20297955.2016.1194606.

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HIDDEN NATURE IN THE MOVEMENT OF CONTEMPORARY ARCHITECTURAL SPACE

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INTRODUCTION

Due to challenges in conceptualizing the complex urban context, architects in favor of what is planned often overlook existing dynamic spatial relationships in site. Subsequently, inanimate conceptions of space become prominent, and movement that brings change and transformation to space is excluded from the architectural design process. This study aims to visualize alternative modes of movement and argue its effect on the perception-interpretation of urban spaces by using photographic research.

The conceptual framework of the research is based on perception and interpretation of urban space through two types of movement. First type of movement is bodily movement of the urban traveller that leads to exploration of the urban residual space in the urban context and to creation of the primary image of the space as documentation. Furthermore, a secondary image of the space is created through an abstract movement in mental space by re-imagining and creating an alternative narrative of the urban space. Accordingly, methodology of the study is described by presenting photography and drawing as tools for documenting and re-imagining.

Understanding Urban Residual Space Through Movement

The first conceptualization of movement emerges from the gaze and walk of the urban traveller. For the body of the urban traveller, urban context is a topological continuity that is composed of various landforms that are both natural and constructed. Amongst this interlace of natural entities and constructed elements, other types of unplanned and unnatural areas come to sight, which can be defined as residual areas of the urban context.

Movement is an ambiguous concept and according to Merriman every movement should be considered as a transforming and creating force for its environment. [1] Urban residual space is explored through the bodily movement of the urban traveller. Unavoidably, perception of urban space is created in accordance to the type of movement that is used by the urban traveller.[2]

Figure 1: Moshassuck Square: Vacant land. 1971-01-01. Smolski, Chester (1926-2008).

Urban residual space, which is defined as empty and unbuilt spaces with no specific function by de Sola-Morales, [3] has the potential to attract urban traveller's attention and mind through her journey in the city. Additionally, creating photography of terrain vague enables the urban traveller to capture traces of multiple spatial potencies that leads to an urban imagination that involves what has and what can happen in that space (Figure 1).

Animation as Re-imagining Urban Residual Space Through Movement

Figure 2: Scenes from the movie Stalker (1979) directed by Andrei Tarkovsky.

The second conception of movement in the study is determined as the reconstruction of movement in urban travellers' imagination as animation. The animation process is realized through interpretation of the photographs of the residual area. As Barthes relates creation of various interpretations of photographic image to observers' subjective memories; [4] the animation, which is derived from subjective memories, enables the urban traveller to explore the temporal aspects of an architectural concept and the potential of a space.[5]

Images of urban residual spaces that has no pre-given definition and dominant figure encourages imagination to transcend the given and reach to various possibilities of the space to become (Figure 2). Subsequently, by using photography and drawing architects can reimagine and animate the temporal and subjective aspects of space.

ON METHODOLOGY

Photograph is a mechanical medium that records the moment and represents different locales and time. The record is characterized by "frozen scene". When it is compared to other mechanical image recording media, like the cinema, the photos do not have the opportunities of the moving image. Sankalia defines a city's unbuilt and residual spaces as the indeterminate background without clean-cut boundaries that

are contoured by building envelopes. [6] He also expresses that the gaze of the urban traveller leads to contemplation on the cityscape in a way to create a new understanding and transcending what is easy to grasp.

Photographical recordings and cartographic representation are unified for this research to re-read and represent areal data and findings that also constitute the interpretive side of the research. Subsequently, the cartography of instant space and wide range of possible animation of photographic record with different typologies enables unfolding the motion of temporality of space-time.

The mechanical medium of photography, which records the moment and represents it from different locale and time, and its particular presence, is also the place of abstract feeling and its reasons for possibilities of compositional reality of framed image.[7] The position of recorded image in the research method originates from its "poetic" and "descriptive" qualifications. When compared to other "abstract images", they are not directly linked to photographic objectiveness. Thus, it can be discovered and examined out of their corporeal content.

The structuralized process for reading photographic records is mentioned by Burgin as the novel potentiality of photographic image that develops unique methodological concept by making unification between re-reading and representing. At first sight refentiality emerges via the support of memory. Thereafter, recorded images do not associate with directly photographic objectiveness. There images refer to beyond, as mental images.[8]

In the process, the photos are translated into other set of representation. They gain their materiality directly and implicitly from lived space. Photographic record enables the movement to be anatomized. Other possibilities of space placed in one record helps to set interrelation in nonrepresentational context. While re-reading the photos all together, new mediums for representation of space are practiced. Subsequently, data fragments of survey, which are "Photographic records of space", "Components of documented space", "Decomposed image of documented space", "Architectural drawings about space" and "Representation of space by collage work", are created. By the virtue of these reunifications, thinking cartographic image as the narration of photos in imagery qualities becomes possible.

Position of Cartographic Representation for the Research Methodology

Reading and representing are linked together in the scope of the research methodology. Abstract and numerous linkages that are developed in this study connect poetic and descriptive qualifications of documented space. This endless association leads to one more image category for the referential source.[9]

The example of Superstudio is interesting in their way of reading and using photography for representing their designed world by novel cartographic appreciation. Their representations show how they excavate meaning about modern presences and reanimate the concept of city according to their perception and understandings. Photographical representation of space is used as layering novel perspective by creating fictional architectural environment.[10]

Cartography is specified via self-referentiality in its concept for this research. Therefore, photos are shown as representing another facts about spatial relations through their abstract imagery quality. The immaterialized fragments in the recorded image become visible as findings.[11]

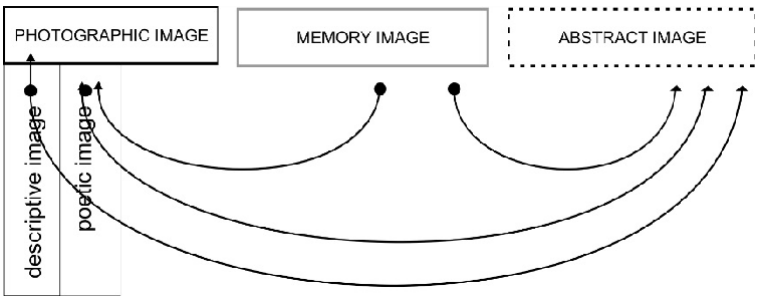

Figure 3: Definition of three concepts for images and their linkages in method

In the research method, the categorical approach is offered as a typology that is shaped by both the sensual capacity of experimentation of physical qualities of the environment and photographic mode of imagery records (Figure 3). "Photographic Image" represents the survey about residual space and the decomposition of photographic unity is used to unfold abstract impressions about space. It is used as a research tool for animation. "Abstract Image" represents the survey about chance relation. The composition of fragmented photograph is used as a tool for exploring novel relation about residual spaces. The spatial drawing is about relation of experiment in residual spaces. "Memory Image" represents the memorized experiment and its conceptual reflection on residual space. These definitions form the experiments through the research methodology in the residual space (Figure 4).

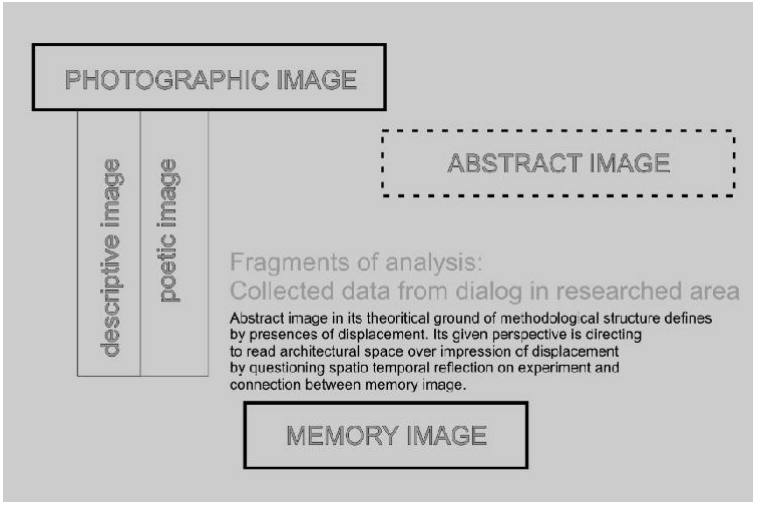

Figure 4: Unfold of three concepts of images over fragment of space and time

These images used in order to develop a novel narration from the exploration of researcher who is in between the static and dynamic context of spatiotemporal city. Instances that are opened via narration are taken as static moments in spatiotemporal relation within city context that separates itself from dynamic flow through its cartographical manner. Several conditions of narration are composed with the fictive narration that symbolizes the flow of spatiotemporal experiences (Figure 5).

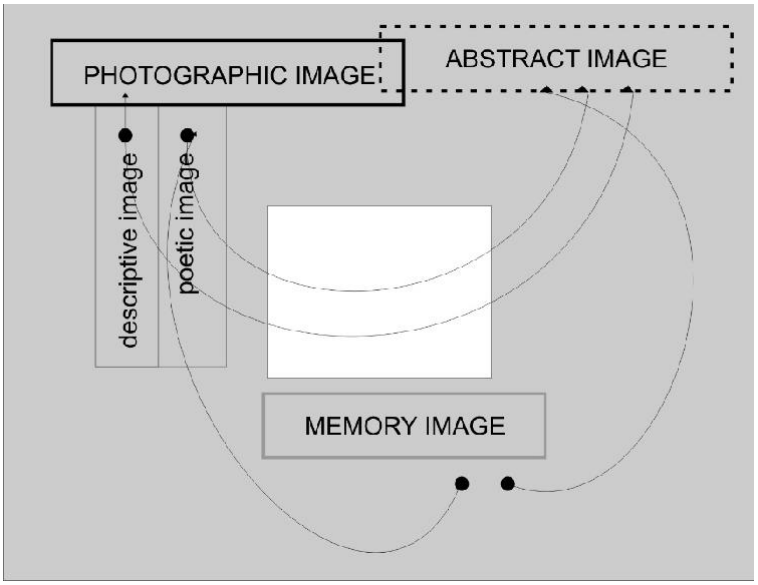

Figure 5: Concept of data and linkages among three concepts of images in research

In general, the research findings conceptualize around the narrative quality of experimentations. Narration is placed at the intersection of three imagery qualities. The headings, which are developed between cartographic representation and photographic recording, are photographic, memory and abstract images. With the abstract purpose, in the composition of the particular place, photographic image is observed to appeal potentialities about captured description. By benefiting from this oppositional relation, architectural realms and imagery presences are redefined via the images of hidden poetic background in the cityscape. Cartography as a research tool enables researchers to re-examine the close spatial relations through photography and explore the inner spatial relations between different scales in urban patterns.

AREAL RESEARCH AND REIMAGINING THE URBAN RESIDUAL SPACE

According to Bergson "Simultaneity of the instant and simultaneity of flow are distinct but complementary things. Without simultaneity of flow, we would not consider these three terms interchangeable: continuity of our inner life, continuity of a voluntary motion which our mind indefinitely prolongs, and continuity of any motion through space."[12]

The residual area that is chosen for this research spans between the railroad and walls of an urban park in inner residential areas of Istanbul. Even though it consists of a two-way car road and pedestrian sidewalk, it is not directly connected to main roads and functions as a residual urban land where people, cars, trees and animals coexist throughout different occasions. Multiple shots are taken from the site and four of them are chosen for analysis that is all defined by the researcher gaze. The analyses are represented by spatial drawing-collage work and decomposition of elements of space.

Areal Data

The shots from the residual space constitutes the focal point of this research which contain physical experiment of enacted space and intuitively sensed active abstract feeling simultaneously. The fragments that create the concept of travelers' interaction with the city belong to a yet inanimate space.

Figure 6: A Residual Area in Goztepe alongside the railroad. (Map: http://www.istanbulurbandatabase.com. Photography: The authors)

The snapshots contain two qualities, which are continuity of actual time as durée and the ephemerality. Therefore, the represented context via photographic image is not developed throughout the thing that is represented in the framed bodies in image. Its quality is developed by the experiments of the urban travelers. The audience observes with all knowledge and read with reminders that depend on subjective memories. [13] The representation of sensual becoming, which is both tool and plot of tool, is supported by three types of images (Figure 7).

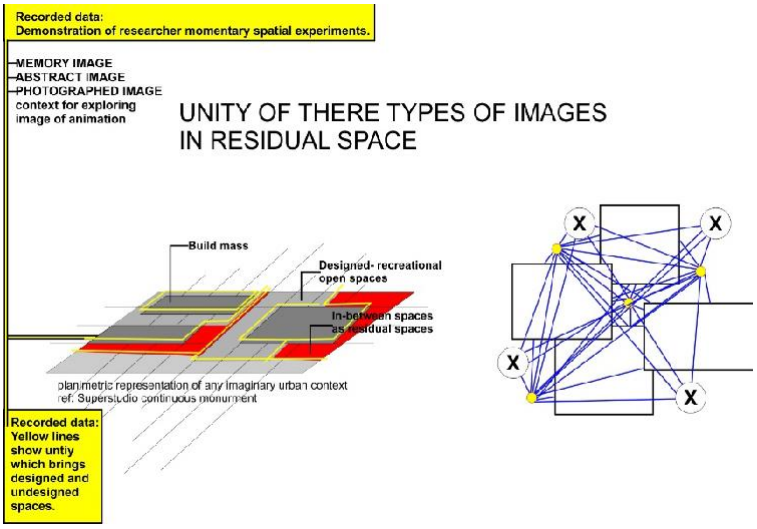

Figure 7: Power of residual spaces that make unify three concept of image in build environment

Question of spatial experience in architecture brings both volume and its material fact together. Elements such as doors, columns, objects and mechanical objects that constitute one building conceptualized in both volume and materialistic sense and they are also treated separately. Ad hoc kind of constructed tradition constitutes important facts for corporeal dialog in architecture.

Findings

The power of photography in a researcher's journey is conceptualized with the terms that attract the observers' attention; thus, they are defined as the action points. The instant moments, as one kind of apprehension of urban space makes observers explore the deepness of movement as a subsidiary of urban context.

The photos were mapped in reference to the position of observers' bodies via pinning the certain points in the issued areas with the aim of creating a representation of researchers' virtual (mental) territory that is identified beyond symbolic marks on the map. Moreover, action points are not only addressed according to the position of eye; but also, linear extension of the eye to the location of occupied volumes is placed in the photos (Figure 8).

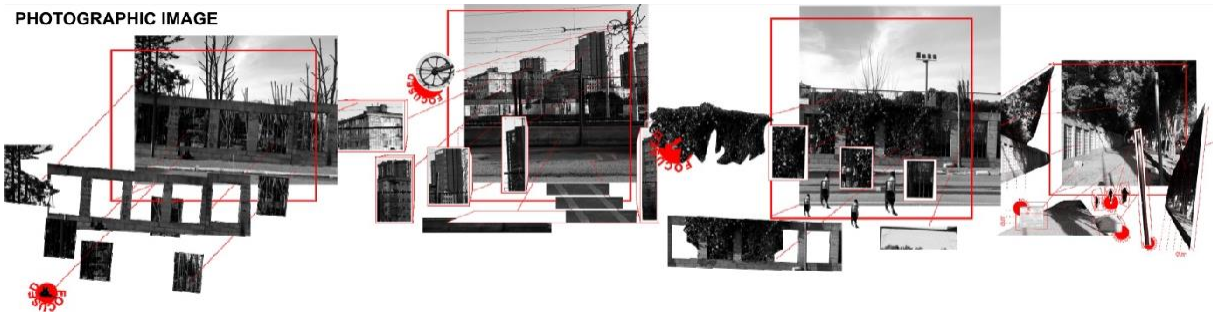

Figure 8: Photographic image about areal research data

The experimental practice with photographic collage aims to visualize alternative modes of movement of instantaneous frame of inevitable animations in living space. Specialty of these images comes from their transformative quality that makes the experience of stability to be perceived as having movement inside. While reading photos all together, also new representing mediums are practiced. Photos are translated into other sets of representation by the help of abstract sense of movement and also presupposed movement concept of the researcher for inanimate images. Moments as cuts are point of flow of expected experience of moving body. They gain their physical context directly in paper and implicitly in the lived space (Figure 9).

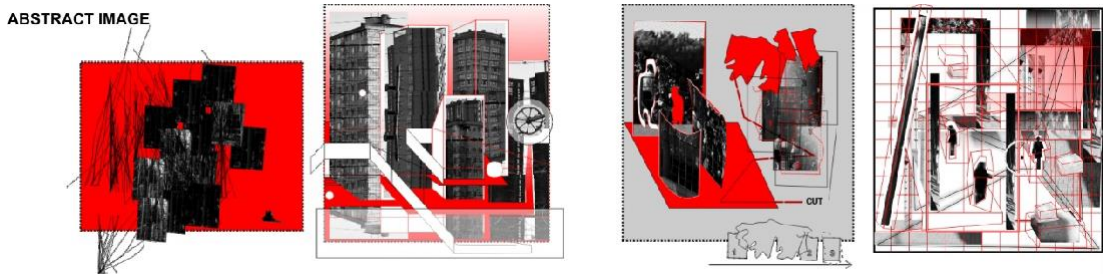

Figure 9: Abstract image about areal research data

As a result, the relations in residual space are showed via photographic records and memory images of space. Interpretation as abstraction creates an impulse to reconnect in accordance with spatiotemporal continuity, flows in memory and unity of experiments. On the other hand, abstract images semantically indicate a sense of alienation from appearances of space-time by disfigured, decomposed experiments and imaginary, unrealistic, insubstantial and illusionary narratives (Figure 10).

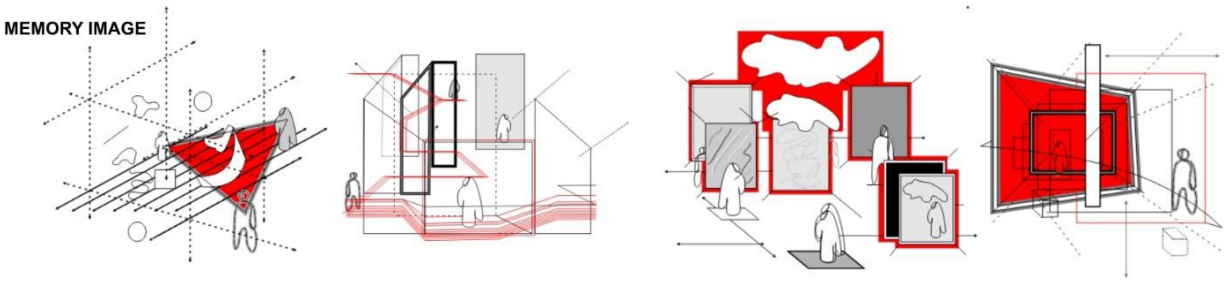

Figure 10: Memory image about areal research

These all images are gathered in order to conceptualize "residual" in contemporary space – time continuity of architectural space. Residual spaces show that memory image and photographed image of same place is not merged together. Residual spaces create a distinction between our recognition and spatial experiments (Figure 11). The sense of distinction between impression of space in memory and its momentary experiments shows the concept of psychologically habitable interval, which is interested as animation about images. Abstraction images (represented via collages) proof for how irrelevancy occurs from space and time (Table 1).

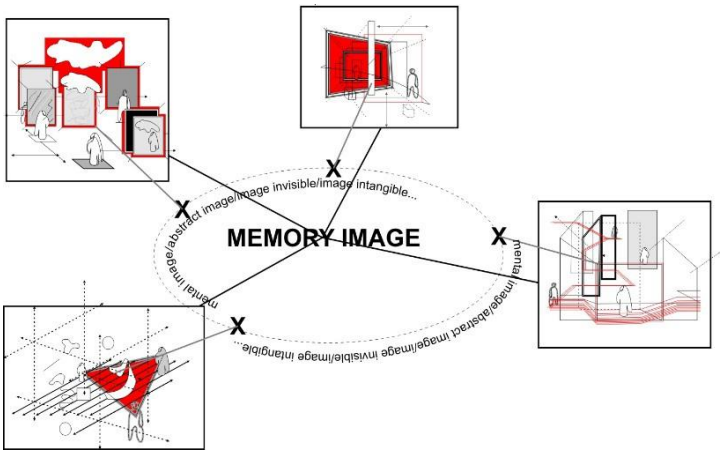

Figure 11: Diagram for invisible and intangible relation in experiments of residual spaces

RESULT ONE
Residual Space -Decipher Connection Between Sense and Physical Spatial Quality
The dislocation of objects from their intentioned dialog, developed via functional and instrumental definitions, offers another spatial unification. Functional objects create their own spatiality outside from its usages. The sensual capacity of body also represents the position in-out through distances of events and other actives limits. Functional objects create their own spatiality outside from its usages. This states of objected reality of masses provides some kinds of roles which is unintentionally preserve in our performance as "watcher". This experiment is identified as "watching".
RESULT TWO
Hidden Nature of Movement In Urban Context is the Concept in Residual Spaces
Physical environment is showed that residual spaces are portrayed imagery qualities. Concept in residual spaces hidden motion of movement in urban context is generalized and overlapped the descriptive quality of space and narration in between presences. As a result, the descriptions bring concrete and abstract realities together. Its detail is mentioned in conclusion

Table 1: Findings as result of areal research

CONCLUSION

City keeps life and death together. We witness this unity by making them two divergent qualities of space. These are basically constituted two opposite categories such as, functional and nonfunctional, fresh and decayed, made and unmade, durable and broken etc. These unities create some opportunities to see alternative modes of representation and give inspiration to understand space and time from different perspectives.

Phenomenological qualities abstract and particular explanation overlapped	**Imagery Description**	**Volumetric Description**	**Spatiotemporal Description**
Contrast qualities: effect on experiments as breaking known sense of order	Unclear image is marked as dark and black areas on photo.	The overlapped crossed lines create contradictory impacts.	The recognized detail in physical space is reused in order to break sensed masses.
Irrelevancies among material qualities, lacking of contextual focal, are reason for problem of grasping scale	Large green areas create ambiguousness among differentiated material characters.	Destroying sense of perspective transforms proper scale of objects.	The multiplied focal damage creates nonsensical space.
Geometric repetitions are experienced as illusion of space and it appears as counter effect in spatial relations.	The repeated pattern in image creates illusionistic affect	Disfiguring space components manipulate sense of depth of space.	Selected sensual focal points are represented as center of space.
The dark colors define imagery qualities over their association with abstract definitions. They are destroyed volumetric impact of masses via irrelevant forms.	Darken contour of figures make context abstract.	3D figures are transformed into surface effects in the space.	Memorized experiment is delocalized body from space and time.

Table 2: Re-reading concept about space image-volume and spatiotemporal description

Table 2 is developed from Table 1 and informs about the experiments in city. Table 2 is overlapped with the definitions emerged under the categorical explanation of areal research. Therefore, these four qualities about experiment in architectural space are examination of animation of space, derived from experiment of residual concept (Table 3).

When daily life in urban context is thought within the spatiotemporal perception, the entire relation of three types of data illustrates concentric unity (Table 2). Residual spaces give way to see memory and

abstraction in concentric relation. Experience of urban pattern as alienation is a demonstration of animation in between memory and abstraction; in between residual space and used spaces.
The material reality of physical space works as a position creator among any landforms throughout the topological continuity of earth face. All existences give clues for the mobility and action about habitable environments for human and other life form. Although inhabitants of the physical space are questioned over their performances as user of functioned spaces, residual spaces redefine the meaning of experience in urban context. It emerges by re-defining the usable area, or it is presupposed that every land in neutral is leftover without any purpose.

ABSTRACT + PARTICULAR =	IMAGE PHYSICAL DESCRIPTON +	VOLUMETRIC PRENSENCES +	EMOTIONAL SENSUAL ACTION +
Sense of contrast in experiment -Interrelatedness of grasped moments and movement in space			
Multiplicity in experiments -Thinking beyond contextual relation and beyond the spatial capacity of presences			
Repetitions in experiments -Dejavu and its experiments as illusionistic effect in living space			
Experiments of ad hoc combination in space -Free associations among sensed environment and reminder role of physical concepts			

Table 3: Re interpretation of image, volume and sense in spatiotemporal experiments

To conclude, animation unfolds via experience of residual space and activates the urban traveler to think about potentialities in build environment. Over all potentials of animation for daily routine and its contextual linkages emerge as a ground for anonymous interpretation of the urban life. Experiment in urban livings and its indicated facilities are situated beyond visible sense of space.
The contradiction in our spatial movement is felt as alienation. This is evaluated as concept of today's-built environment. On the other hand, alienation from urban context is constituted the physical manner of architectural environment. In this regard, interpretation of other possibilities of movement beyond boundaries of constructed area is associated with experience of terrain vague as a spatiotemporal dialog in daily routine.

NOTES

[1] Peter Merriman, *Mobility, Space and Culture* (London: Taylor & Francis, 2012), 2.
[2] Mitchell Schwarzer, *Zoomscape : architecture in motion and media* (New York : Princeton Architectural Press, 2004), 20.
[3] Ignasi de Solà-Morales, "Terrain Vague," in *Terrain Vague: Interstices at the Edge of the Pale*, ed. Manuela Mariani and Patrick Barron, (New York: Routledge, 2014), 26.
[4] Roland Barthes, *Image Music Text* (London: Fontana Press, 1977), 34.
[5] Andrea Simitch and Val Warke, *The Language of Architecture: 26 Principles Every Architect Should Know* (Beverly, Massachusetts: Rockport Publishers, 2014), 3.
[6] Tanu Sankalia, "Perception and Exploration of Interstitial Space: Slots in San Francisco," in *Terrain Vague: Interstices at the Edge of the Pale*, ed. Manuela Mariani and Patrick Barron, (New York: Routledge, 2014), 82.
[7] Leen DeBolle, "Jeff Wall and the Poetic Picture: With Bergson and Deleuze towards a Photo-theory beyond Representation," *Rhizomes 23* (2012), accessed February 22, 2020, http://www.rhizomes.net/issue23/debolle/index.html
[8] Allan Sekula, "On the Invention of Photographic Meaning," in *Thinking Photography,* ed. Victor Burgin, (London: Macmillan, 1982), 85-109.
[9] Ernst van Alphen, *Failed Images: Photography and Its Counter-practices* (Amsterdam: Valiz, 2018).
[10] Peter Lang and William Menking, *Superstudio: Life without Objects* (Milan:Skira Editore, 2003), 31-53.
[11] Allan Sekula, "On the Invention of Photographic Meaning," in *Thinking Photography,* ed. Victor Burgin, (London: Macmillan, 1982), 85-109.
[12] Keith Ansell Pearson and John Mullarkey, eds., *Henri Bergson Key Writings* (London, New York: Continuum, 2002), 211.
[13] Roland Barthes, *Camera Lucida: Reflections on Photography* (London: Macmillan, 1981), 14.

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POST-WORLD WAR II UTOPIA - THE CASE OF KORANGI TOWN

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INTRODUCTION

On January 3rd, 2019, over three-hundred shops were demolished in Karachi, Pakistan by the city's development authority. As per the order of the country's Supreme Court, all encroachments were deemed to be demolished from the land that belongs to the city. [1] The operation was carried out under the supervision of police and armed rangers besides the development authority's official personnel. [2] *'Dawn'* the most prestigious newspaper of English language in Pakistan, reported that this event marked the beginning of a lengthy forthcoming process initiated by the city under the banner of 'the grand anti-encroachment operation to retrieve all illegally occupied city land'. This method was reflective of the position taken by the recently elected democratic government of Pakistan in 2018. The country's new Prime Minister Imran Khan had won his elections on the anti- corruption slogan and a promise of bringing *'Tabdeeli'* meaning change to the country. [3] His political party *Tehreek-e-Insaaf*, meaning the 'movement for justice' had vouched to rid the country of corrupt politicians who worked only for self-interests. After getting elected as the prime minister of Pakistan, he announced 162 billion rupees for Karachi's development, which is the biggest metropolitan city, the greatest economic hub and the only port city for the country and grows at the rate of 6 percent per year accommodating at least 700,000 new residents yearly.

The anti-encroachment operation began on 1600 Road of Sector 5 ½ in Korangi, the first planned satellite town of Karachi city. The demolished shops in Korangi had been reportedly built as encroachments on pavements, roads, parks, and drains; some had two or three floors with residential apartments atop of them. What is interesting here, is that Korangi was once considered as the epitome of the formally designed and rationally planned satellite towns built in Pakistan. Funded by foreign aid, designed by a Greek architectural firm -it was considered Asia's largest postcolonial housing development project after World War II.

For General Ayub Khan's dictatorial regime in Pakistan (1958-1969) this mass housing project had brough much acclamation. Its initial success was heralded in the international media with admiration and was proudly showcased during the visits by British royalties, Queen Elizabeth and Prince Philip in 1961 and the President of the United States, Eisenhower (1959) and the (then)Vice president Linden B Johnson (1961), and other international development experts (Daechsel, 2011). [4]

RESETTLING THE REFUGEES

The history of Korangi town and its residents is entwined with the events linked to Pakistan's independence in 1947, that had accompanied a mass migration of Muslims from India called *muhajirs*. [5] This term used in Urdu language for describing those who migrated carries the connotation of lumping a diverse group of people into a homogenous entity, even though the group represented many ethnicities, originating from different parts of India, with their own language and culture. The only common feature that they shared was their religion and perhaps their experience of the toils of the migration. It was because of this common religion that Muslims of India, organized as a political party called the Muslim League, demanded a separate and independent state from the British. The leadership that spearheaded the movement knew that most of them would eventually lose their homes in India as the division was to be based upon the rule that only those states will be part of Pakistan that had Muslims in majority. Immediately after the partition the State that was initially represented by the party's leadership tried to create a centralized unitary government suppressing regional differences. The newly formed country had four provinces representing at least four major regional ethnicities. Karachi in the Sindh province was announced as the first capital of Pakistan. Within four years after partition Karachi's population of 400,000 people swelled up to be 1,050,000 in 1951, due to 650,000 incoming *muhajirs*. This changed the dynamics of the province that was home to the Sindhi speaking indigenous population before partition, leading to conflicts based on language and ethnicities. Even though, the *muhajir* community itself was a combination of multiple, but primarily Urdu-speaking, communities migrating from diverse geographical and sectarian backgrounds in India, they were still formulated into the category of the 'others' or 'the outsiders' in the local context.[6] Slowly the representation of the first-generation Muslim League *muhajirs* was considerably reduced in the later governments. This began to cause unrest among the dissatisfied *muhajirs,* majority of who were still residing in squatters in the city's center as refugees for the past decade following independence. However, the first major conflict and riots in the city of Karachi, that is now known for political unrest and ethnic violence, were based on labor movement demands. These protests had no ethnic or linguistic connotations- in Marxist terms they can be viewed as a proletariat uprising against the capitalist elite. Nevertheless, the *muhajir* leadership did play a central role in the organizing the labor movement. [7]

Army General Ayub khan, who had become the president of Pakistan through a coup d'état in 1958, addressing *muhajirs* exclusively remarked, that for them, "(only) the sea lies ahead" *"agay samander hai"*. His statement was a sign of warning to those 'trouble causing' refugees reminding them that they had no other place to return to. It also marked the beginning of the ethnic aggravations created around the notion of 'them' and 'us' leading to everlasting linguistic and ethnic conflicts in the city.[8] The foremost priority for all social agendas of the General's early urban policies, were to resettle, more explicitly to 're-locate' the trouble making refugees away from the city center. After taking hold of the government, he immediately took some bold acts of development showing 'visible progression'. Special areas for *muhajirs,* 15 to 20 miles out of Karachi, in the name of 'refugee settlement program' were planned to house *muhajir* ethnicity. Korangi Town a housing scheme of one- to two-room quarters, was aimed at resettling the cleared-out squatter residents, binding their ethnicity to spatiality. For this purpose, General Ayub Khan invited transnational actors (Karim, 2016) (Daechsel, 2011) (Muzaffar, 2012) (Wakeman, 2016). This was the beginning of the city getting spatially divided on ethnic lines.

Generalization and Normalization Tools for Reshaping the 'Other'

In the postwar/postcolonial development arena Karachi became a poster child for development during General Ayub Khan's reign starting from 1958.[9] The chief financial resources for the housing scheme of Korangi Town were the Ford Foundation and the United States International Corporation (USAID)-

it was planned and overseen by a Greek architect and urban planner, Constantinos Doxiadis, who was already involved with the planning affairs of the city as an advisor to the Planning Commission of Pakistan. Doxiadis has been called as one of the last moderns in some accounts of architectural history. He launched his ideas on human settlements, under the name of *ekistics*, in the late 1950s, when Congress International of Architecture Moderne (CIAM) was about to reach its end. [10] Through his connections with some significant personalities at CIAM he was able to launch his ideas on the perfect future city as an answer to the human settlement problems in a packaged form.[11]

Doxiadis's Utopian Vision for Post-War Human Habitat around the World

Doxiadis, was a theoretician of urbanism, who saw urban problems at a global scale. His approach as a post-war urbanist was to develop a framework in the Global South through city planning. The framework was to guide the constantly expanding 20th century city, the *Dynopolis*, based on an ever-escalating system of grids and neighborhood units as sectors, eventually creating an *Ecumenopolis*- a borderless global city. His science of human settlements for the new century, that he called *ekistics*, was based on careful scientific calculations and future projections of growth. The rational character of this visionary system could be described scientifically and visually using grids, graphs, data sets, charts, diagrams, and outputs. He employed Otto Neurath's system of symbols-the Vienna method of pictorial statistics of Isotype diagrams to make his maps and diagrams standardized and legible.[12]

Such characteristics of his work not only made him stand out among his contemporaries associated to CIAM, but also allowed him to sell his ideas to the donor entities like the Ford Foundation, the United Nations and the US Congress. He was an immediate hit among all three of them. In order to achieve their shared objectives *-protecting free nations, maintaining world peace, and countering the effects of communism* in the newly formed nation states of the South-supportive institutions had to be created from scratch, allowing the foreign entities to stay involved in the development of nascent Pakistan.[13] The US had sent myriads of experts besides financial aid to establish these institutions, and Doxiadis was among them. [14]

Doxiadis often quoted that the profession of architecture needed to take responsibility in transforming the society. For this ambitious purpose he appreciated the central role of the state in providing architecture with venues for a greater influence in the world, through large scale projects more, specifically, the post-World War II mass-housing projects around the world. With these projects he asserted a unique position of designing the way people would live after the war in their newly freed states. He placed housing at the heart of economic growth and advocated the advancement of aided self-help policies popular in the UN at the time. In this respect he deemed his vision for the future of cities different from other utopian visions of the 20th century. He called his model *Entopia*, which means, "in place" an 'ideal' but 'attainable' city that could exist between dream and reality (reason) through synoptic planning based on quantifiable and systemic means.[15]

DOXIDIS IN PAKISTAN – PLACING THE DISPLACED

When Doxiadis joined the country's Planning Commission, he landed himself the two most important projects of his career in Pakistan; the planning of Korangi Town and the country's new capital city, Islamabad (Theodosis, 2015) (Daechsel, 2011).[16]

Doxiadis Associates' data base for Karachi projected the future growth of the city for the year in 1959 to be 119,000 homeless families living in Karachi's city center and besides 19,000 all were *muhajirs* - the refugees from India. 55 percent of these families lived in shacks and 43 per cent in semi-permanent structures. He envisioned Korangi Town as a rationally planned self-sustaining settlement that would house 500,000 people belonging to different economic levels where all necessary functions could be

performed (Doxiadis, 1959). [17] Doxiadis's Master Plan for Korangi regulated all land area and was serviced by an educational center to train future planners who would test his methods *"providing in future the best solution to the country's ekistics problems."*

Features of the Doxiadis Plan – Class-based Separation of Work and Housing

Doxiadis theorized the study of all kinds of human settlements through *ekistics* (the science of human settlements); rural, urban, community and regional. [18] *Ekistics* was based on five basic elements that Doxiadis described as Nature, Anthropos, Society, Shells and Networks. The plan was composed of self-sustaining Town sectors placed on orthogonal grids. Each sector catering to a specific income level was further divided into zones based on functions: residential, market, schools, and mosques. Claiming to create a "fully integrated community", that could provide jobs, to at least the lower income residents. Korangi was designed to house the labor class that was supposed to work in the industrial sector of Korangi. [19] The Main feature of Doxiadis' design was dividing the resident population into classes based on income levels.[20] Each class had its own sector equipped with all amenities. [21] However, sectors of distinct income groups were placed in close proximity to avoid severe socio-economic segregation, allowing just enough intermingling that would lead to a slow social transformation creating "model people for a democratic nation" (Wakeman 2016). [22] The 'sectors' were designed in 'human scale.' They were grouped into small clusters comprising rows of neatly arranged units placed around shared community facilities such as water taps, shops, and primary schools, within walking distances. Civic spaces, such as bazaars, teahouses, mosques and schools, were accessible without cars. The first houses were half built with a roofed room, a courtyard and space for future expansion. The idea being that the house would grow with the growth in the income of the family.

The very notion behind the profession of planning is to 'control' and 'regulate', to bring 'order' in the industrial and post-industrial cities. As mentioned earlier, Korangi town was meant to house the future labor force that was to work in the factories situated in the industrially zoned belt of land adjacent to the residentially zoned areas, separated by wide roads. The roads connected workers to the factories ensuring efficient circulation of people, capital and goods.[23] Designation of spaces based on pure function was the device used for managing human actions. The freedom of the residents to run their own businesses from a portion of their homes- a custom very common in the *mahalas* of pre-partition India- was taken away through regulations of strict functional segregation.

Up until 1964, only 10,000 units had been built and allotted on subsidized installment plans to the designated families. When the US funding was pulled out, as the Ayub Khan regime met a violent end in 1969 with the loss of the country's Eastern arm, accompanying more ethnic uprisings, the project of Korangi Township lost its momentum.[24] However, by this time the Doxiadis grid had been laid and the lot sizes had been arranged in neatly organized lanes, demarcating the direction in which Korangi Town should expand in the future.

WHAT BECAME OF KORANGI?

A scheme like Korangi township required a continued paternalistic attitude both from the state and the industry upon which its success was dependent. Doxiadis's vision for a self-sustaining town leading to an *ecumenopolis* was heavily dependent upon large scale industrial development. When the slow growth of the adjacent Korangi industrial area, could not produce the number of jobs required for the purpose, the residents found themselves in a predicament of commuting to their old jobs in the city center, now far away from their new homes. The missing infrastructure in the early years, like roads and transportation system made things more difficult for them, prompting 50 percent of the early Korangi residents to move back to squat near the city center. Those who moved back sold their homes to

speculators who later targeted lower-middle to middle-income families to replace the original residents. There was no financial recovery from the residents, and eventually it was realized that in the absence of returns, the government could not continue to fund the settlement scheme. The non-utilization of facilities such as, schools, and markets that were constructed as part of the scheme to subsidize the maintenance of the township areas, led to more fiscal burdens. The residents found it more cumbersome and expensive to rent or buy shops in the designated marketplaces and instead developed new markets along the main arteries. They opened small scale schools and daycares, shops, dispensaries, and other commercial enterprises within their houses. Now about 25 percent of Korangi households are estimated to be involved in homebased industry.[25]

Karachi, as Pakistan's only port city, has continued to grow into an economic and commercial hub for the country, and so has Korangi. The Korangi industrial area is now a thriving industrial zone. The demographics of the city and the town have continued to evolve. Many of the original residents are long gone; however, Korangi continues to absorb most refugee populations from all other provinces through internal displacements in the country as well as from other countries. The incoming immigrants reside in Korangi to be closer to the industrial area, as Doxiadis had imagined. However, they do not reflect the homogenous group of people that he had thought they were or had aspired to develop, by placing them in neatly organized row housing confined in their own isolated sectors (Wakeman 2016).

The population of Korangi had grown from 1.5 to 2.5 million by 2017; Karachi city itself is considered the 8th largest in the world based on population. Sadly, 50 percent of its residents are living in poverty stricken informal settlements (Arif, Ahmed, Asiya, Ahmed, & Maria, 2015). Korangi Town has pockets of infill informal development in those sectors and areas that were not a built before the construction was abandoned by 1964.

In the past sixty years of independence Pakistan saw three dictatorship regimes and whenever there was democracy, the elected government was formed by political parties representing particular regional or ethnical sentiments; they were often accused of violating the laws to support land developers (both formally and informally) of their choice.[26] Karachi's land is the most prized commodity due to its position as a port city.[27] There are no venues for the poor to get mortgage or loans to buy land, therefore, they remain excluded from the land-owning sector of the society. Whereas the ones who own the land can exert power on the ones who do not own it. Under such conditions the alternate informal system of land control and building construction continued to provide affordable housing in Korangi as in the rest of the city, accommodating a population density of 25,918 people per sq. /Km. The houses that were built on 80 square yards and 120 square yards continued to grow vertically to create more space for the expanding family size.

CONCLUSION

Korangi continues to represent the ethno-spatial identity of the *muhajirs*, the first wave of refugees from India, besides other ethnicities of immigrant and refugees that have also made home in the sectors designed by Doxiadis.[28] However, Korangi town which has gone through many divisions of political boundaries (vacillating between town and district) is currently considered a district with nine Union Councils, that are mostly named after the informal real estate developers who developed them.[29]

In the absence of government subsidized housing programs or services and the hegemony of the private sector in the neoliberal economic system, the poor of Korangi town have only two options; either obtain land through the informal system with illegal paperwork (often protected by political parties representing ethnic or sectarian groups) and processes of encroachments or densify where they are currently living by expanding upward and outward (encroaching on streets making them narrower). In

Korangi today both processes are prevalent, and so is the underlying Doxiadis grid, amidst various building heights and encroachments.

The initial socio-political marginalization of the refugees by the state helped in the emergence of a new ethnicity under the title of *muhajir*, later the ethnicity organized in a political identity claiming spatial expansion, the violence that entails this process is not captured in this article; but is mostly explained elsewhere by the exchange of power between the militarized political parties and the state.

Under the light of Henri Lefebvre's theory (explained in his seminal book *The Urban revolution)*, Doxiadis's plan for Korangi, that was based on universal and generalized rationality, can be deciphered as an attempt to totalize a homogenous space-time through order and constraint. However, it left some voids, when it overlooked the fragmented reality of people, activities and objects. For the discipline of modernist planning everything had to be "calculable and predictable", "quantifiable and transferable" (Lefebvre 2003). A new space-time typology has emerged in Korangi distinct form the (aspired) industrial homogeneity, revealing a political space and a projection of time showing both reactions and dominations of different active forces. The case of Korangi reveals that its residents are also not just dormant recipients of the modernist ideas of rational planning; but they are active agents.

What is now happening in Korangi area in terms of demolition of encroachments can be explained as the political domination of the time exercising spatial control-made possible because of Doxiadis grid still present beneath the layers of expressions of all other dominations.

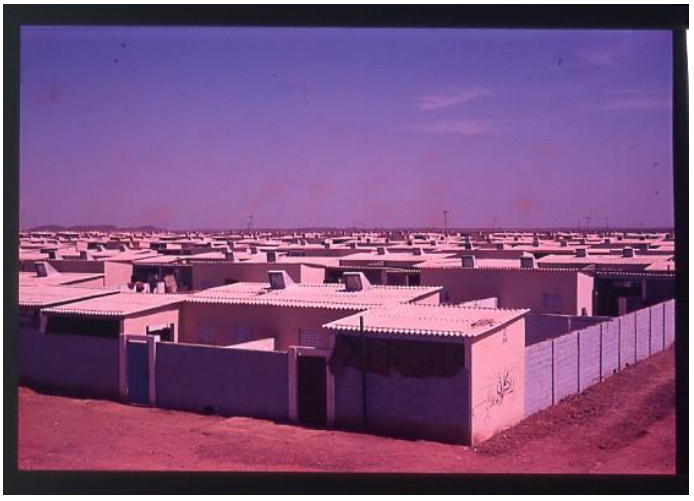

Figure 1. Korangi Town in 1964
Korangi-Community 36A- Low Income Houses
Slides 9576 / no 575
Constantinos A. Doxiadis Archives
© Constantinos and Emma Doxiadis Foundation

Figure 2. Korangi Town in 2019
Elevation of a residential street in Sector 36 A
Shops and businesses on the ground floor in low income houses
Photo credit-author

NOTES

[1] City authority of Karachi is known as the KDA (Karachi Development Authority). 'Dawn' the most prestigious newspaper of English language in Pakistan

[2] 'Dawn' the most prestigious newspaper of English language in Pakistan

[3] Imran khan was originally loved by his fellow countrymen, before stepping into the world of politics some thirty years ago, for being a former world-renowned cricket star who won the country the World Cup in 1992; then built a cancer treatment centre where the poor could get affordable treatment. Later, he formed a political party called *Tehreek-e-Insaaf*, meaning the 'movement for justice'.

[4] General Ayub Khan chose Constantino A Doxiadis, a Greek architect and planner to design and build Korangi (Theodosis 2015).

[5] The term *muhajir* borrowed from Arabic is used in Urdu language to describe people who migrate to avoid religious persecution.

[6] Even though the educated elite among the *muhajirs* who had been central to the freedom movement, constituted the first administrative and bureaucratic body of the newly formed state in the early years, most of the homeless and jobless, had to live in squatter settlements called *Katchi Abadis* (local Colloquial term meaning 'impermanent settlements'). As the city could not keep up with the pace of the growing numbers of incoming migrants, the Sindhis began to fear the changing dynamics of the city and their own place in the public sector; specially when the early government under the Muslim league leadership proposed the idea of keeping Urdu as the national official language of Pakistan to promote integration.[6] This idea was strongly rejected by the Eastern wing of Pakistan that lay about 800 miles across Indian territory and later by Sindhis in the Western wing of Pakistan as well, who saw Urdu as the mother tongue of *muhajirs* who had become the ruling elite in their province.

[7] The role of *Muhajirs* has been discussed in detail by Asdar Ali in *Surkh Salam: Communist Politics and Class Activism in Pakistan 1947-1972.*Oxford University Press. 2015.

[8] Gen. Ayun Khan's policies on giving land grants to Punjabi civil servants and military officers in Sindh who appointed laborers from Punjab and employing Pakhtun laborers who took the rest of the unskilled jobs in transport and construction sectors caused more unrest among both Sindhis and *mohajirs*.
See, S. Akbar Zaidi. (1991). Sindhi vs Mohajir in Pakistan: Contradiction, Conflict, Compromise. Economic and Political Weekly, 26(20), 1295-1302. Retrieved June 8, 2020, from www.jstor.org/stable/4398031

[9] The discourse had already formulated around Pakistan as being an 'undeveloped' or 'poor' country that needed 'development'. The politicians of Pakistan also began to use the term 'development' extensively in their everyday lexicon never questioning what the definition of the term was and most importantly what it meant to them.

[10] The older ideologies of the congress about the functional city, rational planning and machine domination were being challenged by a group of younger members, like the Team 10, it was then that a space was created for another forum that could contribute to pedagogy.

[11] Doxiadis' friendship with personalities like Jaqueline Tyrwhitt, Siegfried Giedion and Jacob Crane who had been involved in CIAM for many years, allowed him to successfully launch the Delos symposia series, almost reflecting CIAM's annual meetings. Even though, Doxiadis never joined CIAM, but was able to promote his ekistics agenda- through the Delos and the journal (Ekistics)- a scientific analysis method for urban planning which claimed to successfully address social concerns, and the environment. He advocated for the consideration for the return of the human scale, underpinning a turn from CIAM's heroic modernist approach to a broader vision for a global village.

[12] Doxiadis represented the destruction of human capital and crops by the war in Isotope system of representation.

[13] After WWII, began the Cold War era and the United States with its educational and industrial institutions jumped into the battle against the worldwide spread of communist ideology, focusing in the newly decolonized countries. The betterment of all social classes was promoted through the international agenda of urban development in the newly decolonized nations, to counter the notion of a socialist welfare state. American values of freedom and democracy and ideals about the free world and its protection through military forces if needed, were promoted as universal values and principles. Due to Pakistan's close proximity to both USSR and China, the United States was apprehensive about the country's leaning toward any of the socialist or communist states in her nascent years. However, as Karim has argued, that when it came to capitalist activities that would direct the country's future in the world market, only those industrial activities were promoted that would not hamper the United States export opportunities in the world market. Therefore, the areas of urban planning and agriculture, were left where visible development through US aid could be implemented fostering friendship between the two nations (Karim, 2016).

[14] Doxiadis had first come to Pakistan in 1954, as part of a Harvard Advisory Group (HAG) assigned by the Pakistani government to draft the first Five Year Plan. Pakistan's development activity was handled by the US Technical Assistance and Productivity Program (TAP) between 1958 -1965 during General Ayub Khan's military government. Ford Foundation was able to successfully establish institutions like the Polytechnique institutes and a woman's universities and village training centers (Theodosis, 2015). Besides Doxiadis the other leading modern architects who were hired during the first twenty years in Pakistan to design the new nation state's major democratic institutions were Richard Neutra, Edward Durell Stone, Paul Rudolph, Stanley Tigerman, Richard Vrooman, Daniel C Dunham and Louis Kahn.

[15] Doxiadis believed that in order to create future cities of optimum size, a science of human settlements was required, for which he had coined the term *Ekistics,* in 1942.

[16] Mohammad A. Qadeer, "An Assessment of Pakistan's Urban Policies, 1947-1997." *The Pakistan Development Review* (1996), Pages 443 - 465. The Federal Government of Pakistan has been including policies regarding 'Housing and Development', since the 1950s, as a distinct section of its Five-Year Development Plans. As a proportion of total expenditures, public investments in physical planning and housing were at the peak in the period between 1955-1965 (Qadeer M. , 1996).

The three decades of military rules and the suspension of the country's constitution during those times in the sixty-year history of Pakistan has led to the centralization of public authority. Even today, the country's central authority remains intact in overseeing its foreign aid financing, and implementation while overriding provincial powers. The provincial and local government agencies are supposed to be responsible for the execution of the plans only. 50 percent (more than 10 million people) of Karachi's population live in *Katchi Abadis*, informal settlements and the housing shortage is 10 million units (Hasan,2015). It qualifies as one of the countries that are facing housing crisis. (see article by Dilawar in Bloomberg, Dec 26, 2018)

[17] Doxiadis understood housing as a link between social and economic conditions of a nation. He regarded housing as a means to create jobs for both skilled and unskilled labor. But primarily, he thought that housing provision was as an obligation of the state and urged the authorities to acquire the necessary land for planning the expansion of the fast-growing cities.

[18] Learning form the past settlements (more specifically Greek) and their patterns, the basic parts of a settlement were defined as: Homogenous meaning fields, Central meaning villages, Circulatory meaning roads and paths, Special meaning Monasteries etc.

[19] Learning form the past settlements (more specifically Greek) and their patterns, the basic parts of a settlement were defined as: Homogenous meaning fields, Central meaning villages, Circulatory meaning roads and paths, Special meaning Monasteries etc.

[20] Doxiadis Assiciates. 1959. The Development of Korangi Area. Periodical Report 2. Page 5.

[21] Crawford has compared Korangi Town to the 20th century industrial towns of the West, especially the company towns in the United States, designed to control and socially transform 'the unruly masses' (Crawford, 1995). Initially company towns were publicized as a solution to labor ordeals in the city centers, specially designed to provide the perfect environment to the worker class by the employer, 'the company.'

[22] The 'sectors' finally connected to major roads running around them forming townships. Instead of concentric expansion seen in most 'natural' cities, Doxiadis advocated linear growth of the city along the major roads as axes, which he called a *'dynapolis'*.

[23] In Foucault's terminology it was about governmentality.

[24] The ethnic and linguistic conflicts turned political when the Bengali speaking residents of the Eastern part of Pakistan found it impossible to have equal representation in the central government that was based in the country's Western part. In 1971, East Pakistan fought for its freedom from Pakistan and became an independent country, called Bangladesh.

[25] Hasan, A., "Understanding Karachi, Planning & Reform for the Future, Karachi", City Press Publication, [ISBN: 969-8380-28-0], pp. 45-50, Karachi, Pakistan, 1999.

[26] The governance of Karachi city itself has remained subjected to discrepancies in various tiers of the government bodies (province, bureaucrats, etc.)

[27] Hasan describes that due to the complicated system involving public institutions to access affordable housing, the poor often avoid to approach them and find it easier to access housing through a middleman giving rise to the informal practice of providing housing. The middleman is a part of the informal sector of real estate development that has emerged in the absence of regulatory power of the government and its corrupt practices.

[28] Even though the dynamics of Korangi have also changed significantly as it continued to absorb migrants from all parts of Pakistan and now it presents a mix of people speaking languages such as Sindhi, Baluchi, Pashto and Bengali.

[29] The name of the councils are: Bilal Colony UC 1, Nasir Colony UC 2, Chakra Goth UC 3, Silver Town UC 4, 100 Quarters UC 5, Gulzar Colony UC 6, Korangi 33 UC 7, Zaman Colony UC 8, Hasrat Mohani UC 9. Each government followed the trend of decentralizing government control. In November 2013, Korangi District (as one of the six administrative districts of Karachi) was created as a separate administrative entity, that has three administrative towns. This division allowed the Urdu speaking *Muhajirs* who are the later generations of the original immigrant populations from India, to stay in power during elections. As their presence in the rest of the province of Sindh is not significant but it is in Karachi that they are in majority and are also concentrated in areas such as Korangi. The number of councils in the district determines the representation in the government.

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"URBANOGRAPHY" OF A REGION OF ATHENS (GREECE) THROUGH FORMS OF ART AND CULTURE

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INTRODUCTION

The city and the arts

The description of the cities was made before the scientists and is carried out in our time, through an endless series of creators of literature who approached and captured with great accuracy the city, its name and its people. It is argued that every great writer today is a writer of the city and in fact there is no creator of the nineteenth-century or twentieth century who has not written about the city[1]. Even the Iliad of Homer constitutes an "urbanography" amongst other special categories.

Of course, very often, "*the [writing] city is the product of embellished memory and romantic writing*"[2]. However, the "city of literature" is an integral, important, and dynamic part of "urbanography". Narratives about cities and literary descriptions, along with poetry and theatre, have the power to create mental performances with great power. We thus obtain a mental mapping of the city through narration. The artistic performances of the cities, through the huge range of artists' creative perceptions of painting, photography, cartooning, comics and cinematic representations, represent yet another intercultural approach through the industries of culture.

In addition, as the city is often identified based on references to it, newspapers and journalism have the ability and the power to contribute to its reputation. Cities exist as spatial entities, but at the same time they can be found and selectively retrieved whenever needed, from reference sources, such as encyclopedias and geographical and encyclopedic dictionaries. Also, the cities appear on the pages of newspapers and magazines or on television images. We could say that the city as a construction of people is in contrast with the image formed by its reference[3]. After all, the place is not defined only by its spatial data and characteristics but also by its chroniclers and the "Word" and "Myth" that its people create as well as their activities and works[4].

Fine arts and literature represent and depict, in a creative and experiential way, cities of people. Architecture and cinema are culturally related. If the trend of cinema for wandering comes from the architectural field, it is because architecture has a cinematic nature. As a form of imaginary touring, the moving image shares the dynamics of an architectural walk and has the ability to create its own architectural movement.[5] The two-way relationship between the art of cinema and the structured urban space creates a wandering in our cities, intertwining reality with imagination[6].

“Urbanography” of the region of Kypseli through forms of art and culture

In this presentation we will follow the "journey" of Kypseli, a central neighborhood of Athens, from the beginning of its creation to the present day through cinema images, photographs and the literature. Kypseli in the role of "protagonist" or "auxiliary actor" in these creations, sometimes mobilizes and sometimes not, the narrative. It often creates the shots in which the "acts" are placed or simply decorates them. We discover, through these forms of culture, landmarks, monuments, local peculiarities, architecture, venues of entertainment and art of the region, and we get a "condensed" interpretation of the landscape.

So we will try to "map" it by looking at visual artifacts (engravings, photographs, and films). We will see how the daily, periodical, and online press outlines it over time. The purpose of this narrative "mapping" is to highlight the sensory dimension of landscape through concepts such as that of the lightscapes, nightscapes and emotional city. Something that will perhaps enrich the way we design and manage living spaces as well as the modern myths.

KYPSELI

One of the oldest and most densely populated districts of Athens, Kypseli, forms undoubtedly an integral part of Athenian history.

Creation

In the first period, the main source of "mapping" of the area is the photographs, the engravings, the literature, the poetry and the encyclopedias, but also the daily press.

In 1837, the archaeologist and founder of the magazine "Archaeological Newspaper" Kyriakos Pittakis (1798-1863) writes: *"the Athenian historian Xenophon had referred to the area of Kypseli as Gypseli"* (Figure 1A):

During the nineteenth-century Kypseli was referred to in texts of foreign travelers and was mainly an area with farms and gardens. An engraving from the middle of the nineteenth-century (Figure 1B) shows the rural Kypseli with the special relief of its soil. In the Figure 1C we can see the villa of Sir Pulteney Malcolm, commander of the English squadron of the Mediterranean, which was built between the years 1831-32 to designs by S. Cleanthes and E. Schaubert. The building, without rich architectural decoration, is one of the first samples of neoclassical architecture, preserved in Athens. The villa was later bought by the Greek Prime Minister Spyridon Trikoupis (1788-1873) for his residence, while for a while it also housed the French Embassy. From 1902 until today it houses the "Asylon Aniaton"("Hospice for Neuro-disability"), which was founded in 1893.

The historian, writer, academic, lawyer, poet, D. Kampouroglou (1852-1942), describes the rural area with lush vegetation, next to the Malcolm’s mansion and later "Asylon Aniaton" in the nineteenth-century: “*A large wall separated my uncle's estate from that of Mavrokordatos (later Trikoupi and later Asylon Aniaton). I did not forget the border blackberries of a mulberry, not even the rebuke of my mother, who looked at me with blackened lips. The water passed through the garden from the cisterns of Gasparis, which was provided to the various owners, at certain times of the day and night*"[7].

The poet demetrios kokkos (1856-1891) wrote the poem "the rooster of kanaris" about kypseli and the hero of the greek war of independence 1821, konstantinos kanaris, who lived there, describing it brilliantly as a *"fragrant countryside"* with *"green meadow"*.

The first definition of the boundaries and the name of the Kypseli district, at the institutional level, are defined in 1908 in the work of the law engineer Ath. S. Georgiades. The inclusion of Kypseli in the City Plan took place between 1887 and 1929, with some extensions after 1930[8]. However, the areas that were annexed were much larger than the real housing needs of the area at that time. Thus, until 1930, the

structured environment consisted of houses with gardens and orchards. These houses belonged to a high income class of industrialists, ship-owners and stockbrokers.
In 1909, the "Encyclopedic Dictionary" characterizes Kypseli "*as a rich rural settlement of Athens, inhabited by bourgeoisie"* and the Figure 1E since 1909, is identified with the above description. The two-storey houses look luxurious and the tree lines have been planted along Patision Street, while the urban fabric remains sparse.

Figure1.
A. Excerpt from the magazine "Archaeological Newspaper" (1837) [9]*,*
B. Kypseli (1835) [10]*,*
C. Mansion of Sir Pulteney Malcolm (1848) [11]*,*
D. Zannou family on the stairs of the house in Kypseli, on Troias Street. (1897) [12]*,*
E. Patision Street between Kefallinias Street and Agamon (America)Square (1909) [13]*,*
F. Article of the newspaper "Empros", (December19,1906) [14]*, G. Article of the newspaper "Empros", (October 13,1904)* [15]

A "*noisy and vivant settlement*", but also the "*most elegant and picturesque district*" is, according to a very interesting description of Kypseli by "Periergos" ("Curious") of the newspaper "Empros" (December 19, 1906) (Figure 1F). As the writer describes, a few years ago, the district was a beautiful countryside full of almond trees and the only house was the residence of Konstantinos Kanaris. It was transformed "*magically*", in a minimum period of three years, which the writer had not visited it, in a district that will connect the city of Athens with the suburb of Patissia and will be the "*most poetic*" and "*most cultural district of Athens*", as it occupies "*the most beautiful and picturesque place in the city*". Kypseli is a dynamically developing rich district of Athens, which in 1904 acquires streetlights and its inhabitants thank the mayor of Athens Spyridon Mercouris for this (Figure 1G).

Prosperity

Interwar period

The urban character of the area is shown in Figure 2A. We can see Konstantinos Kanaris' Square in 1925, Fokionos Negri Street on the right and in the center, the summer cinema Attikon, in its old place. In 2013, Alexandros Lavdas writes characteristically in the newspaper "Kathimerini": "*Kypseli has a 100% urban heritage; it was not built either as a refugee settlement, or in response to the current of internal migration.*" [16] This urban area, in 1928 is large enough to acquire a "new tramway" to serve its residents (Figure 2B), providing for that period, full transport coverage with different public transport (Figure 2C).

Figure 2.
A. Konstaninos Kanaris' Square (1925) [17]*,*
B. Article of the newspaper "Scrip", (September 1, 1928)[18]*,*
C. Public Transport (1933)[19]*,*
D, E, F The "Kanaki apartment building" in chronological order[20]*,*
G. View from the "Lanaras apartment building" today [21]*(built 1938- Architect - Civil Engineer Ioannis Zolotas),*
H, I, J Scenes from the film "Neither cat. Nor damage." ("No harm. No foul") (Actor: Lambros Konstantaras) (1955)[22]

Urban apartment building of the interwar period

From the beginning, Fokionos Negri Street was an area particularly desirable for housing, attracting upper- and middle-income groups, as the entire Kypseli where the apartment building (polykatoikia) has been chosen as the main type of residence. During the interwar period, the buildings were following the vocabulary of the modern movement and the apartments were particularly comfortable. For this kind of buildings, Emmanuel V. Marmaras uses the term "Urban Apartment Building"[23], giving emphasis on its urban component to significantly cover the two main implementing factors, namely the production process developed in Athens at the time and the social content it acquired.

The Figures 2D, 2E, 2F show one of the first apartment buildings in Kypseli, at 21, Fokionos Negri and Thiras (Thira) Street, the "Kanakis apartment building" (architect Michael Kanakis) at the time of its construction in 1935 (Figure 2D), later, as a scene for street fights in December 1944 (Figure 2E) and later when the ground floor housed the "Ellinikon patisserie" (Figure 2F).
Just opposite (23, Fokionos Negri and Eptanissou str.) in 1938 is built the emblematic privately owned apartment building of the industrial family Lanaras (Figure 2G), which "*dominates with the robustness of its volume, the clear proportions and the curved shapes of its elements*" as mentions M. Mpiris, professor of NTUA, in "Seven Days" of the newspaper "Kathimerini" in 2003. We can see the "Lanaras apartment building" in the Greek film "*Neither cat. Nor damage.*" ("*No harm. No foul*") of 1955 to be the residence of the great protagonists (Actors: Vassilis Logothetides, Ilia Livikou). (Figure 2H, 2I, 2J).

Fokionos Negri Street -"Via Veneto of Athens"

"We have been living Fokionos Negri since the years when it was a stream. Stream, which descended the waters from Turkovounia when it rained they passed under Patision in Agios Meletios and continued to Kifissos [River]. Immediately above Kypseli's Square was the butts of the Hellenic Army Academy. Then, Kostas Kotzias came as mayor. He closed the stream, planted trees, made a lake, built the Municipal Market. The place was beautiful. And we started to melt the soles of our shoes on the walks. When we had little money in our pockets we sat in the cafe of Petros Lameras. The most common, however, was to standing, next to the kiosk of Kaliakoudas. There were also the big celebrations when there was money in our pockets; we were sitting in the bar of Dritsas for beer. This was rare, very rare …." [24]

Fokionos Negri Street (Figure 3A) was formed in the 1930s by the mayor Kostas Kotzias (1934-1936) with the arrangement of the Levides stream (Figure 3B). In 1937, the architect Vassilis Tsagris created a linear park, planting trees and shrubs and then building fountains and playgrounds, between two asphalt roads. In 1935, the Municipal Market of Kypseli was built, a work of the architect Alexandros Metaxas and a typical example of Athenian modernism (Figure 3C, 3D and 3E).
In the film *"The beauty of Athens"* (1954) by Nikos Tsiforos, the protagonists (actors: Mimis Fotopoulos and Gelli Mavropoulou) meet in Fokionos Negri Street of the early 1950s (Figure 3F & 3G) a green street-linear park, which also has original works of art, such as the statue of a dog (Figure 3G). This statue will be seen again in the foreground in the Greek movie *"Some people prefer it cold"* of 1963 (Figure 3H), but in a different position, as it has been placed in various places on the street along the years.
Fokionos Negri Street developed into one of the most expensive areas of Athens, but also the most glamorous and lively areas of secular Athens. As Dionyssios Zivas, architect and professor emeritus of NTUA, characteristically says in an interview: "*Fokionos Negri is a pre-war achievement. They called it Via Veneto of Athens"*. The singer and actor Yannis Vogiatzis sings about the historical street in the song of 1965 entitled "*Fokionos Negri"* using the same characterization (*"Via Veneto of Athens").*
The Greek film of 1965 *"The teddy boy of Fokionos Negri"* (Figure 3I) expresses the image that the people had formed for the area and its hangouts, where in many of the "footballs and billiards" of the region frequented the "teddy boys" (young people with provocative appearance and delinquent behavior). In 1958, Law 4000 was passed by the Greek Parliament in response to the growing manifestations of youthful denial and reaction. The law was maintained in force until 1983. The wider importance given by society to this measure can be seen in the film by Yannis Dalianides entitled *"Law 4000"* (1962). In fact, the scenes of the deportation of juvenile delinquents were filmed in Kypseli, around Fokionos Negri Street (Figure 3J).

Figure3.
A. Fokionos Negri Street (early 1930s)[25],
B. Fokionos Negri Street (~1935-1936)[26],
C. The inauguration of the Municipal Market of Kypseli (1937)[27] ,
D. The Municipal Market of Kypseli (1960s -1970s),
E. The Municipal Market of Kypseli today[28],
F. & G. Scenes from the film "The beauty of Athens" (1954)[29],
H. Scene from the film "Some people prefer it cold"(1963)[30],
I. Scene from the film "The teddy boy of Fokionos Negri" (1965)[31],
J. Deportation scene in the film "Law 4000" (1962)[32]

"Cecular" Kypseli

Theaters, cinemas, secular centers and bars created the entertainment character of the area.

"The people of the weekend flooded the sidewalks in Fokionos Negri. The cars were going up and down on both sides of the road with an uninterrupted chatter. With all the smell of the exhaust fumes, the smell of the rinsed lemons reached their noses. In the Oriental cafeteria they found the frame on the right with the crystal partition half empty. They isolated themselves on one side and ordered toast and orange juice"[33].

In the Figure 4A, we see the protagonist of the film *"Law 4000"* (1962), (actor Vangelis Voulgarides) walking down Skyrou (Skyros) Street in the direction of Fokionos Negri Street to meet the beautiful protagonist (actress Zoe Laskari).

"Cinematic Fokionos Negri" may be a fabricated myth, but the real one with its patisseries and nightclubs, was a reference point for the Greek "star system" in the golden age of the Greek cinema. In the 1960s, Fokionos Negri Street became famous for its nightlife.

The famous patisserie "Select" started operating in 1948 on the corner of Fokionos Negri and Thiras (Thira) Street, opposite the "Lanaras, apartment building" where we see the protagonist (Lambros

Konstantaras) sitting in the 1955 film *"Neither cat. Nor damage"* (*"No harm. No foul"*) (Figure 2J). Then, in November 1959, the *"new Parisian"* Select (Figure 4C was inaugurated, in place of the Media Luz cinema (23, Fokionos Negri and Eptanissou Street), according to an article in the newspaper "Ethnikos Kiryx" quoting: *"with the presence of the whole of secular Athens, businessmen and politicians"*[34]. Figure 4B offers a panoramic view of Fokionos Negri from the height of Eptanissou Street since 1964. We can distinguish the patisserie "Select" on the right and on the left the "Lanaras, apartment building". "Select" was frequented by a large film and theater group of actors, directors and writers in the 1960s.

An important pole of nightlife was the "Igloo" nightclub that hosted the band of "Formix" in which Vangelis Papathanassiou (worldwide known as Vangelis) and Demis Roussos performed, before starting their international career. For a while Eric Clapton also played the guitar there (Figure 4D).

Figure 4.
A. Scenes from the film "Law 4000" (1962)[35]*,*
B. The corresponding picture today[36]*,*
C. Panoramic view of Fokionos Negri from the height of Eptanissou Street since 1964[37]*,*
D. Night shot from the 1960s of the "Select" patisserie[38]*,*
E. The band "Juniors" in "Igloo" nightclub of Kypseli, after the accident of October 10,1965 where members of the band were killed and injured, with Eric Clapton in their lineup (right)[39]*,*
F. Panoramic view of Fokionos Negri Street and Ano Kypseli (Upper Kypseli) from the height of Ioannou Drossopoulou Street (1964)[40]

Agios Georgios Square -"A neighborhood of artists"

Figures 5
A. and B. Scenes from the film "The chaufferaki" (The little chauffer) (1953)[41],
C. The brass lamppost in the center of Agios Georgios Square (Saint George Square, snapshot from the film "Who is Thanassis" by Thanassis Vengos (1969)[42],
D. In the finale of the film "Jeep, Kiosk and Love" (1957) by Maria Plyta, the protagonists (actors: Nikos Stavrides and Sofia Matthioudaki), run away to Ithackis (Ithaca) Street with the one-storey and two-storey houses then[43]. On the left,we can see the church of Saint George,
E. Today, most of the old buildings have been replaced by apartment buildings[44],
F. Stapling snapshots from the film "Who is Thanasis!" by Thanassis Vengos (1969) from Agios Georgios Square[45],
G The corresponding image in 2014[46],
H. Scene from the movie "Elias of the 16th ("Police Department")" (1959)[47],
I. The corresponding image today[48]Agios Georgios Square (Saint George Square), a small

circular square in Kypseli, was the setting for many well-known Greek films of the 1950s and 1960s, which were a great success. In this area were shot the films: "Lost Angels" (1948), "The chaufferaki" ("The little chauffer") (1953) (Figure 5A and 5B), "The liars" (1954), "Jeep, Kiosk and Love" (1957) (Figure 5D), "Elias of the 16th ("Police Department")" (1959) (Figure 5H) and "Who is Thanassis!" (1969) (Figures 5C & 5F).

The features of the square comprise the brass lamppost in the center, work of the sculptor A. Carrier (Figure 5C) and the church of Saint George in its eastern side. Postwar, the streets around the square were inhabited by middle income strata of population, while the detached houses and the two-storey buildings of the interwar period gradually gave way to multi-storey apartment buildings, which were built in a circle, "embracing" the square. The cafe where the three friends meet in the film *"Elias of the 16th* ("Police Department")*"* (1959) (Figure 5H) has given its place in an apartment building (Figure 5I). From the interwar period and the 1950s and 1960s, the square and the wider area was the area of residence of many actors, intellectuals and journalists.

"A new film place"

Figure 6.
A. Poster of the film "An Italian woman from Kypseli" (1968)[49]*,*
B. Poster of the film "The giant of Kypseli" (1968)[50]*,*
C. & D. Scenes from the film "The vertigo"(1963)[51]*,*
E. Scenes from the film "Dirty City" (1965) by Costas Andritsos[52]

Kypseli and especially Fokionos Negri Street from the 1960s is a new film place, which expands the Athenian cinematic geography. It gave its name to film titles, such as *"An Italian woman from Kypseli"* (1968) (Figure 6A), *"The giant of Kypseli"* (1968) (Figure 6B) and *"The teddy boy of Fokionos Negri"* (1965) (Figures 3I).

The intensive reconstruction in the late 1950s and 1960s, presents Kypseli as a new neighborhood ready to welcome middle income groups, which emerged at that time. The intense motility with the many night clubs, cinemas and cafes, make it a place of entertainment, mainly, of the youth. The carefree and

sometimes explosive adolescence of Kypseli will be connected with films with a youthful theme. Characteristically, apart from the *"Law 4000"* (1962*),"The vertigo"(*1963) with protagonist Zoe Laskari (Figures 6C & 6D) and the *"Dirty City"* (1965) by Costas Andritsos (Figure 6E) can be reported.

Decline and "colorful" reality

Since the mid-1980s, there has been a shift of mainly young households to the northeastern and southeastern suburbs. However, the oldest residents remain in the area, especially on the upper floors and in the larger apartments. Greek cinema, passing to another era, does not deal much with Kypseli, as it gradually loses its potential and its glamour.

The 1990s are a turning point for Kypseli, as the mass entrance of immigrants (such as Albanians after the fall of Hotza) reverses the declining trends of both the population and the average household size and the age pyramid. Orpheus Perides describes in his song *"Kypseli"* the multicultural character that the region gradually acquired.

CONCLUSION

This journey through time is concluded with the current sociological characteristics of this historical district of Attica. Kypseli nowadays consists of a mosaic of old residents, families of immigrants, Erasmus students and airbnb tourists. It begins to attract young people who either choose it for the cheaper rents or return from the suburbs to their parents' abandoned houses and along the way discover a neighborhood that they never imagined.

In 2015, the "Flaneur" magazine from Berlin, which means "walker", with texts in English, chose to pay tribute to Fokionos Negri because incarnates the transformation of the urban landscape of Athens in recent decades. *"The road personifies the transition from the "Athenian urban scene" of the past decades, to a colorful and multicultural mosaic"* explains the article in the online magazine "Pronews"[53]. The writer and resident of the area, Menis Koumandareas wrote: "*Maybe gargle water have been flowed on this street in the past, maybe it has been the meeting place for artists, the time where the bourgeoisie have been at their peak. But even now how interesting the sidewalk is and how much variety has.*"[54].

NOTES

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RETHINKING THE DESIGN AND DELIVERY OF SOCIAL INFRASTRUCTURE - A SYSTEMS BASED METHODOLOGY AND PROPOSITION

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INTRODUCTION

The urban condition of many U.S. cities is characterized by drastically uneven development, comprised of increasing concentrations of poverty and areas of urban disinvestment with asymmetrical distribution of urban services and uneven access across neighbourhoods. During the past several decades, these conditions have been intensifying. This paper describes design research that engages with questions of inequality in cities through the lens of complex systems and access to social infrastructure. In this work we develop a near-real-time mapping interface tool to spatialize geographies of exclusion and related agents of access in cities. This informs a prototypical design methodology to reassemble instruments and actors through new lightweight spatial typologies embedded within these urban milieus to shape new models for social infrastructure as multi-modal access hubs that aim to catalyze transformation.

THE PRODUCTION OF URBAN EXCLUSION

Since the 1990's, metropolitan areas across the United States have witnessed increased investment and revitalization, especially in their downtown cores. Some of the forces that enabled this urban reinvestment included urban governance policies and development instruments based in neoliberal ideologies such as the privatization of urban services, rollbacks on welfare and public housing, zoning deregulation, and laissez-faire economics, especially in relation to development risk.[1] In parallel, there has been an escalation of increased concentrations of poverty, urban inequality, and lack of access producing an ever-more highly uneven urban landscape. Studies indicate how the interacting systems of contemporary land use policy and development patterns in many U.S. cities have been leading to a sharp growth in the concentration of poverty, as well as increased segregation by race.[2] Sociologist Saskia Sassen in her 2014 book coined the notion of "expulsion" from "core economic and social orders" and described how late capitalist practices implicate networks of systems, institutions, and instruments that operate through the logics of complexity to exacerbate conditions of growing inequality.[3] She argued that "these expulsions are made" through politico-economic forces that "have created a world where complexity too often tends to produce elementary brutalities."[4]

The brutalities Sasken theorizes are vivid on the ground and produce neighbourhoods where the only place to get food without taking a bus for hours is a gas station, where shuttered storefronts line and

define the street, where there is no social infrastructure such as libraries, community centers, or even coffee shops, markets and other establishments that serve as social hubs, and where the public realm is neglected and characterized by abandonment and vacancy. What it means in daily life is that people living within impacted communities not only have a vastly reduced quality of life, they are also far more vulnerable in times of crisis. During the city of Chicago's 1995 deadly heat wave, research has indicated that the majority of residents who lost their lives during that event were residents of primarily poor and predominantly African American neighbourhoods that lacked social infrastructure.[5] During the first wave of the Covid-19 pandemic, statistics indicate that communities living in concentrated poverty, and especially those in Black communities, have a much higher risk of complications and death from the coronavirus.[6] As the world faces increasingly frequent and escalating crises and disasters due to climate change, the societal impacts of exclusion and inequality are anticipated to become even more acute and more deadly.[7]

Our research-driven design work in this area has been exploring propositions for hybrid urban interventions comprised of assemblages of social infrastructure that can be distributed in underserved neighbourhoods in order to provide access to needs for community members, while also improving the urban and social conditions of these areas. The work takes a cooperative and systemic approach, tuned to the specificities of each particular locale, where built structures, technologies, and landscape systems combine with policies, embedded community organizations, institutions, and practices. Our methodology operates across nested scales and activities, from mapping and analysis, to engagement practices, and design iteration toward the development of community and locale-specific strategic urban design propositions. Figure 1.

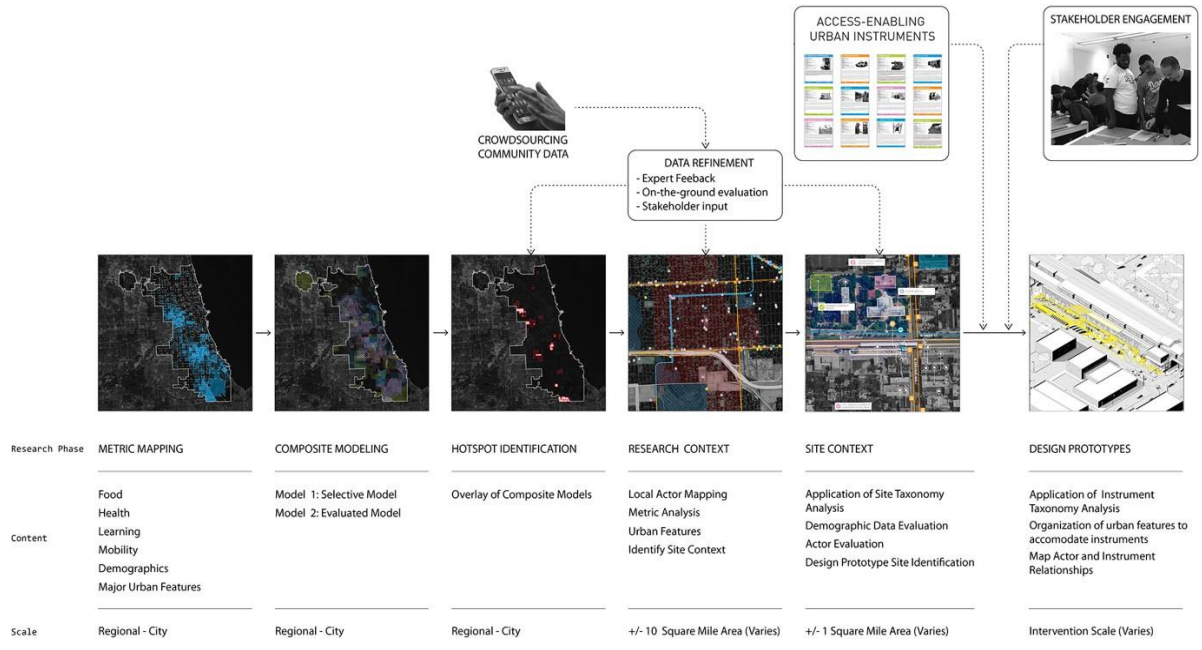

Figure 1. Analysis and design process across nested scales and practices.

GEOGRAPHIES OF ACCESS AND EXCLUSION: THE URBAN ACCESS MAPPING TOOL

We have written previously on our development of layered maps, thickened with information at multiple scales and generated from multiple datasets and sources, to unpack spatial narratives that simultaneously describe particular geographies and situate the agents and flows that contribute to their production.[8] A primary aim of the work described in this article has been the development of a layered mapping

methodology that could be interactive, accessible, participatory, and that could dynamically capture the transformation of cities and urban datasets in describing urban access. We have developed the "Urban Access Mapping Tool", a dynamic mapping interface that enables the visualization of a geography of access and exclusion for the metropolitan areas of Detroit, Chicago, and the San Francisco Bay Area. It focuses on access to food, health, learning, and mobility, which we identify as four urban rights toward a socially just city.[9]

The mapping tool uses near real-time data scrubbing techniques to combine and layer GIS-based data from multiple sources. A combination of HTML, CCS, and Javascript were used to import, style, and represent data through the Google Maps API, chosen for its ubiquity, familiarity to multiple constituencies, and graphic manipulability. Layers can be toggled on and off or visualized simultaneously and overlaid to enable apprehension of more complex conditions and interactions. Data from a range of governmental sources is displayed by census tract, and can be overlaid on sociodemographic census data, which is also visualized in the tool.[10]

In order to represent and analyze a population's access to food, two existing metrics were applied: The Modified Retail Food Environment Index (mRFEI), developed by the US CDC in 2011, and the USDA's Low Access Census Tract classification.[11] These metrics indicate Food Deserts (defined as areas with low income combined with low access to healthy food within a half mile), Food Swamps (areas with low income combined with high access to unhealthy or fast food) and Food Sheds (high quality grocery stores with 5 and 10 minute walking distances). Figure 2.

Figure 2. Multimodal Access Tool, screenshots from Detroit Food (clockwise from top left): USDA Food Atlas by census tract; food actors with 5 & 10-minute walksheds; data at closer scale with satellite imagery overlay; food actor visualized through the Google Maps API.

To depict access to health, two measures of access were selected: Health Professional Shortage Areas and Medically Underserved Areas and Populations. The former refers to geographies, populations, or facilities that are considered underserved by health professionals and the latter is calculated by the

Health Resources and Services Administration (HRSA) combined data based on the number of primary medical care physicians per 1000 individuals, infant mortality rate, percentage of population below the Federal Poverty Level, and the percentage of the population age 65 or over.[12] As another means of measuring access to health services, the insurance status of population coverage rates by type was assembled by census tract from the 2011-2015 American Community Survey.[13] The population of a census tract is considered underserved if more than 20% of individuals lack health insurance, and severely underserved if more than 40% lack insurance.

Learning access is evaluated using a methodology developed by the Chicago Public School System (CPS) to identify School Tiers. The specific algorithms defining these tiers has not been released, but the data showing the results of these calculations is published yearly by CPS.[14] OpenCityApps has attempted to reverse-engineer these results to understand how the city generates socioeconomic tiers based on school performance and demographic data gathered from the US Census.[15] In our research on learning access, this methodology appeared to be sufficiently robust and balanced for our particular use.

Mobility access is visualized via a series of overlays that include census data on household vehicle ownership, GIS shapefiles for transit lines, transit stops, and, where available, boarding and alighting data for each stop.

To identify areas within the city where statistics indicated concentrated exclusion from access to food, health, learning, and mobility, we developed a model that weighted combined aggregate access data to develop "Inaccess Hotspots". This analysis registered a gradient of varying inaccess levels across a study area, and the hotspots represent populations burdened by the most severe measure of inaccess across all metrics. By working across the different municipalities of Detroit, Chicago, and the Bay Area, we aimed to develop a platform robust enough to address different granularities and qualities of data available. Figure 3.

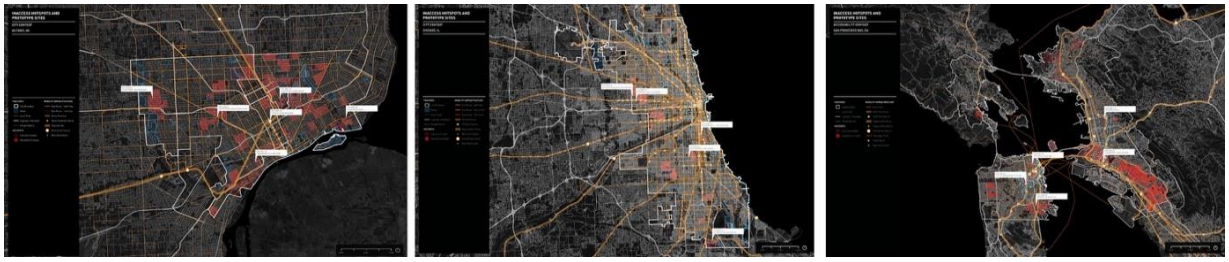

Figure 3. Geographies of Exclusion: "Inaccess Hotspots" and sites of prototype development in Detroit, Chicago, and the San Francisco Bay Area

The goals for this mapping tool were not limited to the identification of areas where residents experienced most acutely low levels of access, but also aimed to identify local actors present that are actively working to deliver access to food, health, learning, and mobility within these urban areas. Assembling the context and agents of change within the depiction implicates a field for future transformation. These actors and agents include organizations, activist groups, business enterprises, institutions, NGOs, city agencies and philanthropic entities. Datasets describing these agents were obtained through the D&B Hoovers/Avention OneSource business data portal. Business data was selected by associated North American Industry Classification System (NAICS) codes. However, some of these datasets were found to be incomplete, with entities sometimes mislabeled or miscategorized. In focus areas, the research team used Google Maps imagery and business data from Google, Yelp, and Facebook to verify this data and also to locate key actors that were not present in the D&B Hoovers/Avention OneSource data. Where possible, on-the-ground verification through physical site inventories of local actors was undertaken. One of the limitations of this process is that the OneSource

data requires subscription, which presents a barrier to making this mapping tool publicly available without licensing fees.

Our team also developed a process by which individuals can contribute actors and information to the tool's database, working toward democratizing the data-driven urban design processes. This creates opportunity for community members to contribute their local knowledge to the map, empowering voices that are often excluded from typical statistical datasets, and in this way can become more representative and "thicken" the story of access to address social justice in the city. Figure 4.

Figure 4. Multimodal Access Tool Detroit screenshots (clockwise from top left): Inaccess hotspots overlaid with DPDD development priority zones; detail of Detroit's North End neighbourhood with access enabling actors; same area with USDA Food Atlas data; community generated local actor (urban farm) detail.

This participatory mapping process was prototyped with students from Detroit Public Schools enrolled in the University of Michigan's ArcPrep program. An aspiration for future work would be to develop a mobile application for the gathering of community information outside of structured participatory mapping workshops that might further expand the voices engaged. Figure 5.

Figure 5. Students from Detroit Public School U-M ArcPrep program during a 2019 workshop using the mapping tool to identify local actors in their neighbourhoods.

DESIGN PROTOTYPES FOR ACCESS-ENABLING SOCIAL INFRASTRUCTURE

A growing body of research undertaken by human geographers, social scientists, and anthropologists makes a convincing case for the need and importance of social infrastructure as an essential component of an inclusive and democratic city. The definition of social infrastructure is expansive, but is typically described as spaces where social life and public activities occur across public institutions, commercial establishments, recreational spaces, religious spaces, and transit spaces.[16] Beyond fulfilling instrumental functions, social infrastructure contributes to community resilience, social stabilization, and even mortality in times of disaster: sociologist Eric Klinenberg argues that "[t]he stakes are real: Weak social infrastructure breeds economic isolation, political misunderstanding, and the social divisions that fuel the most dangerous forms of xenophobia."[17]

To address the crisis of systemic disinvestment and lack of access to urban rights in neighbourhoods, we argue for the provision of these needs through social infrastructures that that can be rapidly and nimbly deployed. These can work to stabilize and propel neighbourhoods, reinstating them as temporal actors within urban dynamics. We propose a systemic approach comprised of multiple discrete yet interrelated moves that harness and marshal networks of institutions, organizations, financial, and legal instruments to enable urban access within cities. Underutilized physical urban spaces can be repurposed to reassemble social infrastructures toward alternative urban processes that have the potential to rewrite spatial rules and terms of engagement between inhabitants, spaces, and institutions.

Our design propositions are propelled through a game-based process. We develop an open-ended set of playing cards that assemble a lexicon of lightweight "urban instruments" that can be used to provide access to food, health, learning, and mobility. We focus easily deployable, often mobile and technologically enabled interventions into urban spaces. These can be physical, such as a bus stop, a microlibrary, a playground, or a food locker; mobile, such as a food truck, a medical monitoring station, or an electric scooter; or ephemeral such as a wifi mesh network or a public learning channel. The cards include information such as relative implementation and maintenance costs, ownership and implementation type, other networked instruments, and case study examples of use in cities. The instrument cards are used as both as tools for design iteration and for engagement with participant groups to enable visualization of what could be implemented in underserved neighbourhoods. Figure 6.

Figure 6. Instrument cards for food, health, learning, and mobility prototype development.

The Mapping Tool enables the identification of strategic sites where statistics indicate the most acute exclusion. It also helps to identify local actors that can be leveraged toward transformation of the neighbourhood. At this point, the data needs to be verified on the ground, and actors and conditions not accounted for in the data are added. This process was tested across sixteen sites in the three study cities. Through this process, we identify strategic locations where municipally or institutionally owned space, such as parking lot edges or city-owned vacant lots, can serve as physical platforms that can be redesigned to enable access to urban needs through the assemblage of lightweight instruments and social infrastructure in new public urban spaces. Instruments for specific sites are chosen based on study of the particular needs of that community, and local programs, incentives and enterprises who would have interest in the provision of these services. We prioritize existing local actors and agencies who might be mobilized to collaborate, use, and support these instruments in each specific neighbourhood, and indicate this organizational network as part of the drawings produced. Figure 7.

Figure 7. Detroit's Burgess Park neighbourhood area analysis and visualization using the mapping tool in combination with site research to identify local actors and sites for prototype implementation.

A schematic design process then envisions how the urban spaces can be physically redesigned through prototypical and "lean" interventions such as new surfaces, roofs, and places to sit and to gather, in addition to the fixed and itinerant urban instruments. Each prototype thus becomes a multi-use public

space that provides access to needs through both technologically enabled means and place-making strategies and forms a social infrastructure for the neighbourhood. Figure 8.

Figure 8. Access enabling prototype development at Burgess Park in Detroit illustrating access enabling instruments (left) and proposed Farmway Community Hub Prototype that will create synergies with existing local groups and activities (right)

The process was prototyped at the sixteen sites across the cities of Detroit, Chicago and the San Francisco Bay Area. The selection of sites varied across each city and community. In Detroit, the context is characterized by scant public transit and a proliferation of vacant lands produced by the city's population shrinkage and program of abandoned property clearance. Here, potential sites were identified in areas that were already activated by local communities, such as near churches, schools, or strip malls where community members currently gather or meet their needs. In Chicago, a city with a robust transit network, the site selection process prioritized spaces adjacent to high volume transit routes. These infrastructures often produce adjacent areas of underutilized urban space, typically city and/or transit authority controlled, with whom public-private partnership for increased social infrastructure provision would also improve the quality of the city's public realm.[18] The proposals aim to make these spaces of mobility into real social hubs, transforming them from being some of the most unwelcoming and poorly designed spaces in the city (especially when they are not in the urban core) to becoming places that are active, safe, and produce a generosity of civic life. In the San Francisco Bay Area, the prototypes prioritized sites that were adjacent to or part of exiting public spaces. Due to the very high cost of real estate in that city, these sites strategically aim to amplify existing capacities. In some cases, our prototypes were positioned as counter-proposals, such as at the plaza of Oakland's Lake Merritt Bart Station, where the proposed intervention consists primarily of mobile elements that create a temporary access-enabling occupation of the public space while a new station is currently being designed for implementation. The project thus conceives these prototypical urban architectures as a kind of acupunctural infrastructure, intended to operate systematically across the city. By making use of mobile and itinerant programs and structures paired with lean urban placemaking strategies, these prototypes reconceive both the provision of access to needs and the provision of social infrastructure in the city. Figure 9.

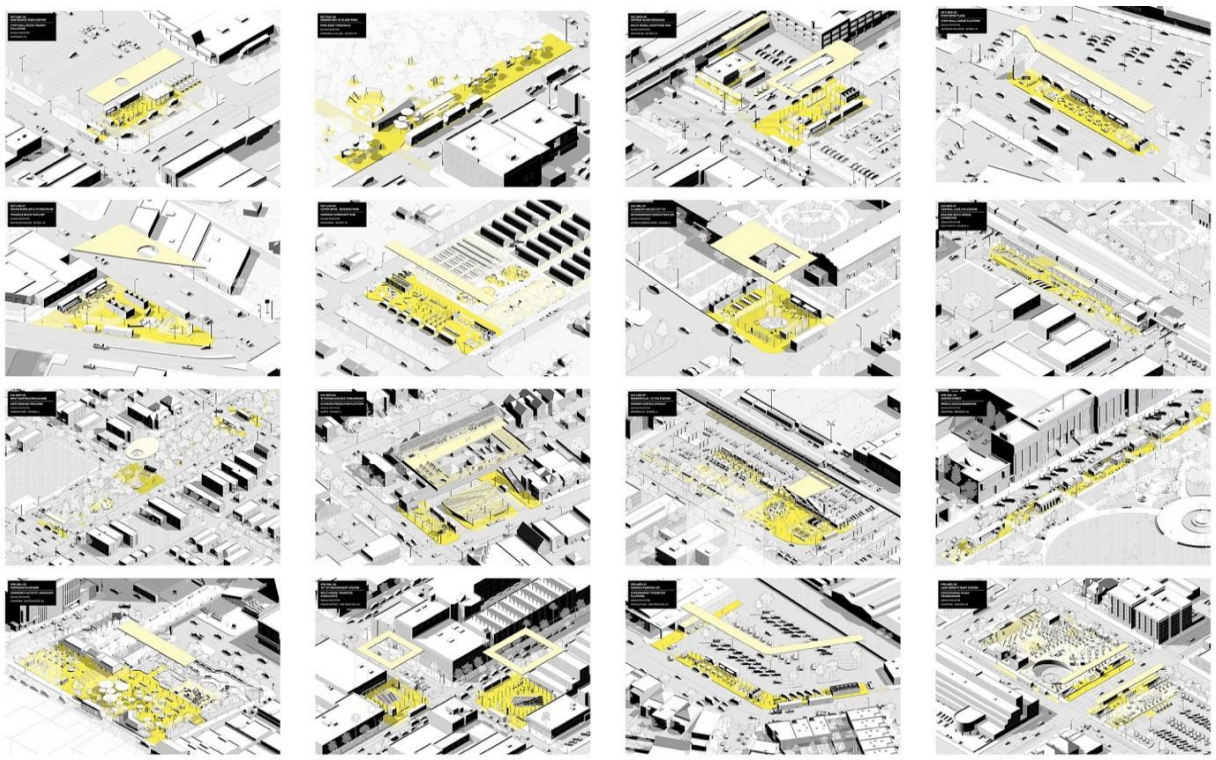

Figure 8. Prototype designs developed through the analysis and design process for sites in Detroit, Chicago, and the San Francisco Bay Area.

CONCLUSION

This paper describes an urban design research process that operates across cascading scales to address questions of urban inequality and propose a method to develop new lightweight social infrastructures. The work begins with data aggregation and analysis at the city and region scale through the Urban Access Mapping Tool, to on-the-ground analysis and verification, and community engagement (when possible). Currently, the tool has been developed for the cities of Detroit, Chicago, and the San Francisco Bay Area. This process informs prototype design proposals situated in specific public spaces that assemble access enabling social infrastructure and local actors that can be brought together to work to shape and produce an emancipatory alternative for urban communities. Complexity and systems thinking informs the approach in both the ways we aim to visualize and render legible existing contexts, and the ways in which we aim to describe possible alternatives. Here, we try to visualize not only the object of design but the forces, systems and ingredients that support it, the allied networked forces and mechanisms that might bring a proposal into being, as well as those that may support and sustain it. The next steps considered for this work are to find ways to make the tools, processes and approach publicly accessible with a hope that it might assist other groups in working towards alternate modes of social infrastructure development that can work in opposition to the dominant forces that have eroded this critical dimension of urban life and the built environment.

ACKNOWLEDGEMENTS

Team: Ford Alliance PI: Dr. Jon Coleman, Design Research Assistants: Andrew Kremers, Joshua Krell, Tithi Sanyal, Jiushuai Zhang (U-M / RVTR)

Funding: Ford Motor Company Alliance Program, Michigan Mellon Project on the Egalitarian Metropolis, National Science Foundation (#1832214), University of Michigan Taubman College of

Architecture and Urban Planning. Work described in this project and publication does not necessarily reflect the views of sponsoring agencies.

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THE SLIDING PUZZLE MODEL - BUILDING PUBLIC HOUSING BY LEVERAGING EMPTY SPACES

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INTRODUCTION

Housing shortages and lack of accessibility to affordable housing is becoming increasingly common across cities around the world. Formerly, and especially during the post-Second World War period, public housing was widely considered as an obvious and functional way to address these shortages, in particular insofar as it affects then poorer sections of the population.

In light of the shortcomings of past social housing programmes, but also by taking into account that the increasing dominance of private actors over the housing market has generated a reality whereby prices seem to steadily grow over time, one can safely propose that new, daring housing policies are needed. One can furthermore propose that the State in is a unique position that allows it to act decisively within the housing market so as to effectively interact with private market forces with the ultimate aim of reducing, or at least stabilizing, average house prices and increase accessibility and affordability. Increasing the rate of publicly, Municipally-owned and controlled housing is a viable option so as allow public entities to leverage their own housing stock so as to affect average housing prices- and yet, social housing programmes of the past that have attempted to do this have had considerable shortcomings. By increasing the Municipal housing stock, and inserting them into the affordable renting market, Municipalities can come to affect prices and empowering their own decision-making structures whilst making a positive contribution to their cities. But any attempt to do so must address the demonstratable limitations and flaws of past public housing programmes.

THE HOUSING PROBLEM

House Price Rises are Out of Control

Housing shortages and lack of accessibility to affordable housing represent an increasingly common issue in cities around the world – globally, prices have tended to rise[1].

Figure 36 - Evolution of Average Housing Prices Worldwide[2]- the overall trend has been for global average house

And not only have average house prices risen consistently over the last decade, but the rises in house prices have also been, in the majority of countries studied by the following IMF graph, been considerably higher than rises in average incomes, which results in higher rations of house price-to-income ratios- *this trend can be verified globally*:

Figure 37 -Evolution of Average Housing Prices to Income Ratio Worldwide[2]- the majority of countries studied in this graph demonstrate a growth in housing prices as related to income

Increasing the rate of publicly, Municipal-controlled housing is key so as to lower prices, and yet social housing programmes that have attempted to do this have considerable shortcomings. Many municipalities have attempted policies such as rent price controls- this article will focus on how this trend can be corrected by building new housing and increasing the overall housing stock.

Why and How the State Has Stopped Investing in the Housing Market

Madden and Marcuse's "In defense of housing – the Politics of Crisis"[3] is perhaps one of the most comprehensive recent works that extensively addresses the transformation of the State's role in regard to its intervention within the housing market and the arena of housing overall:

"The first factor is the contemporary counterpart to enclosure: deregulation, the removal of restrictions placed on real estate as a commodity. Throughout the United States and many other countries, there has been a steady trend towards weakening or abolishing the regulations, customs, and rules governing residential property...

"Deregulation also permitted a wave of privatization of publicly owned or controlled housing…

"For all of its far-reaching consequences, deregulation has not meant the subtraction of the state from real estate markets. It has not meant getting rid of regulations so much as rewriting them to make real estate a more liquid commodity. The state is still deeply involved throughout the housing system"[4].

But while the tendency has been for States to deregulate and loosen their controls over housing markets, all while also investing less into affordable housing, their regulatory role means that they are still, in more than one way, quite actively participating in the general trend towards less affordable housing:

"…For these authors and more, the hyper-commodification of housing is not the problem—it is the solution. This reasoning follows clearly from standard economic logic. But this position ignores the real-world effects of the commodification of housing. Fully deregulating and unleashing the cranes will not and cannot solve the housing crisis, for a number of reasons.

"First, while markets are imagined as self-organizing entities, as we have seen, the state has always been central to the process of making housing a commodity that can circulate through market exchange. The state cannot "get out" of housing markets because the state is one of the institutions that creates them. Government sets the rules of the game. It enforces the sanctity of contracts, establishes and defends regimes of property rights, and plays a central role in connecting the financial system to the bricks and mortar in which people dwell.

"In other words, housing markets are political all the way down. The balance of power between tenants and landlords, or between real estate owners and communities, cannot be determined in a neutral, apolitical way. What the free-market boosters ignore is the question of power"[5].

The main point to be taken away is that the neo-liberal talking point that defends a policy of Statal non-intervention in regard to housing in general carries a series of misconceptions and non-sequiturs when one considers some basic facts and concepts not only in regard to housing itself, but more essentially, to the role of the State itself in areas such as upholding of commercial and civil contracts, as well as some of its most basic functions of territorial management.

Social Housing and Segregation

The Charter of Athens[6], as Ascher points out[7], defended a vision of the city in which zoning was taken to its extreme, by prescribing overly segregated zones separated by use- post-Second World War social housing policies and what can be described as tendency for the building of social housing in the cities' peripheries were guided by what was at that point seen as a drive to decongest city centres and to rid them of the perceived squalor or inner, central city living. Seixas[8] defines this lingering legacy and the way in which it affects cities' administration thus: "(…) with rare exceptions, we continue to administer, regulate and design the urban territory by means of models still strongly based on almost exclusively morphofunctional logics (...), delimitation of land uses and regulation of functionalities by paradigmatically outdated notions." The Charter of Athens itself[9] puts it in the following terms, in its Second Part, "The Four Functions of the City", in its initial "Dwelling" section: "9. The population density is too great in the historic, central districts of cities as well as in some nineteenth century areas

of expansion: densities rise to 1000 and even 1500 inhabitants per hectare (approximately 400 to 600 per acre). 10. In the congested urban areas housing conditions are unhealthy due to insufficient space within the dwelling, absence of useable green spaces and neglected maintenance of the buildings (exploitation based on speculation). This situation is aggravated by the presence of a population with a very low standard of living, incapable of initiating ameliorations (mortality up to 20 per cent).”

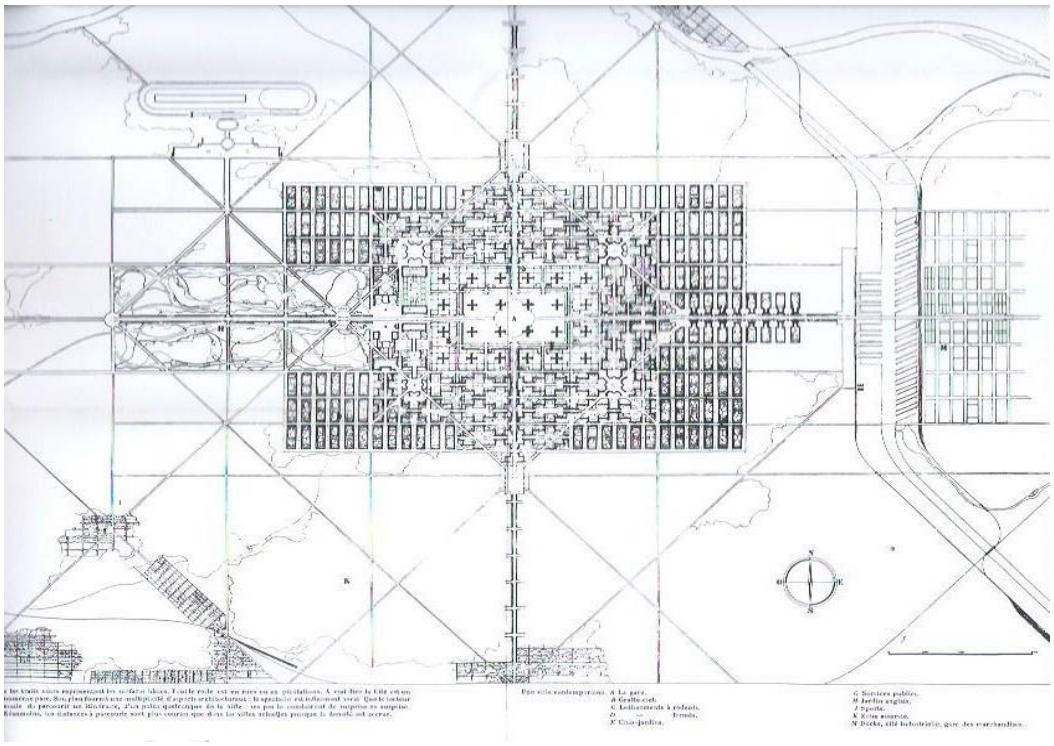

Image 1 - Le Corbusier's conception of what cities should look like and most specifically, the zoning practices he proposed are characterized by highly segregated uses and rigid divisions[10]

Mixing different income groups, ethnicities, religions, and age groups is fundamental to avoid socio-economic problems in the same manner that biodiversity in the agricultural realm can be a good insurance policy:

"The term mixture calls for a real miscellaneous social-territorial mix - mix of social groups, individuals, classes, ethnicities, ages, housing, activities, equipment, services, transport - which makes (or would make) the city an urban mix. That is, the central objective is the transition from a situation of segregation to a more balanced (ideal) situation…

"Through social mixture, we intend to avoid the constitution of places of poverty, racial enclaves and places of urban violence, and the voluntary separation of certain segments of the population. Finally, social mixture constitutes a Republican ideal that aims to maintain the national cohesion of a State based on the ideal of equality. The term “social mixture” is based, as it were, on the relationship between three ideals: social cohesion, territorial solidarity and social rebalancing…"[11].

The logic of territorial equality can also be said to be a fundamental element of social justice[12]. However, most of social housing programmes of the post-war period in Continental Europe followed the monofunctional, segregated model rather than the logic of socio-economic and territorial mixing and diversity. This is for several reasons, but one can say that it was a mix of convenience, as cheap, empty land is easier to find in the peripheries of cities, as well as a blatant case of trying to “hide” the poorer segments of the population away from city centres, whilst also carrying the political benefit of housing

them far away from the physical centres of power, a factor that is particularly relevant in social housing programmes in capital cities.

THE SLIDING PUZZLE MODEL AND SOCIAL HOUSING

Housing policies of the past have had as their basis the belief that dignified housing is a human right and thus have focused on providing cheap or free housing to those who could not afford to purchase or rent their own homes on the private market. Social housing programmes have all too often generated cheap, low quality buildings, blocks and sometimes whole neighbourhoods that often become hubs of social exclusion. But as capitalism matured, private housing became the norm. This in turn, together with speculative investment, resulted in skyrocketing prices and the exclusion of younger generations from the property market and sometimes even renting. The main objective remains to lower prices so as to increase accessibility for all.

Attempts to limit the agency of the State in the housing arena to simple oversight have proven insufficient or counter-productive. It is becoming painfully obvious that the State must be more than a regulator and must be ready to invest heavily in housing if it is to have a real impact.

Providing free housing to those in need is not only expensive, but risks being seen as highly unjust by those paying high rents and who have invested heavily in purchasing homes or are still paying mortgages. If free housing is provided to those who cannot afford a home it would be more profitable to stop paying out loans, be evicted and then wait for their free State-provided homes. Any major disruption to the status quo would also essentially compromise the banking sector's stability and quickly hasten another financial crisis.

The paradoxical role of the State should therefore be to use public investment in housing not so as to provide free housing but to use the overwhelming investment capacity of the State to significantly lower prices in the medium to long term. This can be done if a high percentage of housing is owned by the State, but is rented out much like private homes are, with the ultimate goal of giving the State the capacity to lower overall prices through the pressure provided by the lower prices of its own housing stock. This role has been largely left to central and private banks which try to affect prices by changing mortgage interest rates. It is becoming abundantly clear that this is insufficient.

Let us take a recent development -as a response to housing shortages and price rises, a new housing tower will be built in Lisbon, but not in the centre, but instead in the first periphery, in Benfica[13]. This seems to be a step in the right direction as it constitutes a positive and decisive, to not say brave, step towards a new public housing policy that incorporates affordability and density. However, one must ask whether this model may be repeating some of the old mistakes of past social housing policies, namely, building high-density housing in the peripheries rather than the centre. There are some important ideas that we can refer back to. Firstly, the Urban Utopian Radio Centric obsession taking centre stage again, but in this context, with the question of centrality and peripherality playing a key role on the decisions pertaining to the location of new housing units, or even where should take aim when projecting redevelopment projects, with empty spaces in the periphery almost always being the only possible candidate. What one is hereby proposing is that building higher density housing in the periphery is indeed the most likely and rational choice, in the absence of tools such as the Sliding Puzzle Model. The Sliding Puzzle Model can be an important contribution that can, if applied, permit us to go from dystopian, highly hierarchical, concave cities to more egalitarian and less hierarchical convex cities. By using the Sliding Puzzle Model one can move these target areas, which are the empty spaces available for development of new housing, progressively towards the centre, as we have just seen in the “Proximity of Relocation” chapter.

A Paradoxical Public Housing Initiative

Housing policies of the past have had as their basis the concept that dignified housing is a human right and thus have focused on providing cheap or free housing to those who could not afford to purchase or rant their own Homes. But unfortunately, it often led, in particular when considering the context of post-Second World War continental Europe, generated cheap, low quality buildings, blocks and sometimes whole neighbourhoods that often became ghettos. But as capitalism advanced and became dominant it became obvious that building housing was to increasingly become a private endeavour. This in turn, together with speculative investment has meant that prices have skyrocketed, and younger generations are increasingly being excluded from the property market and sometimes even the renting. The dual objective then becomes to lower prices so as to increase accessibility to dignified housing.

Attempts to limit the agency of the state in the housing arena to simple regulation have proven insufficient or even counter-productive. It is becoming painfully obvious that the state must be more than a regulator and must be ready to invest heavily in housing if it is to have a real impact.

However, handing out free housing to those most in need would not only be expensive, but risks being see as highly unjust by those who pay high rents, or have invested heavily in purchasing homes or are still and will continue to pay mortgages. If free housing is handed out to those who cannot afford a home it would be more profitable to stop paying out loans, be evicted and then wait for their free state-provided homes. Any major disruption to the status quo would also essentially compromise the banking sector's stability and could, in a worst-case scenario, even perhaps quickly hasten financial and political crises. The objective of the state in regard to housing policy must be to both incrementally work towards full coverage, higher affordability, less homelessness as well as higher quality housing.

The State’s paradoxical role could therefore be to use public investment in housing not to provide free housing, but to use the overwhelming investment capacity of the State to significantly lower prices in the medium to long term. This can be done if a higher percentage of housing is owned by the State, and more specifically, if publicly-owned housing is rented out and/or sold much like private homes are, with the ultimate goal of giving the State the capacity to affect overall prices by changing the prices of its own housing stock. This role has been left to central and private banks which try to affect prices by changing mortgage interest rates- *it is becoming abundantly clear that this is insufficient*. It remains to be seen what rate of overall housing stock needs to be publicly owned in order for the state to be able to affect prices quickly and efficiently, but one can imagine that anything between a third and half would be necessary- as ambitious as this might seem, the risks of not acting decisively in the area of housing policies are too great for inaction to be considered as an alternative.

It remains to be seen what rate of overall housing stock needs to be publicly owned in order for the State to be able to affect prices quickly and efficiently, but one can imagine that anything between a third and a half would be necessary. By carefully studying rates of public housing stocks, their respective models and how they have affected overall prices, an optimum rate can be devised that should become the standard for how involved in public housing the Municipality should be.

The Sliding Puzzle as a Tool for Municipalities to Buy Back Into the Housing Market

The Sliding Puzzle Model[14] has as one of its main characteristics the ability to provide incremental height and therefore occupation gains where extra housing is built by making strategic use of empty spaces. The image below illustrates how the Sliding Puzzle Model allows for the relocation of existing housing into taller buildings, thus freeing up empty space on which new buildings can be built:

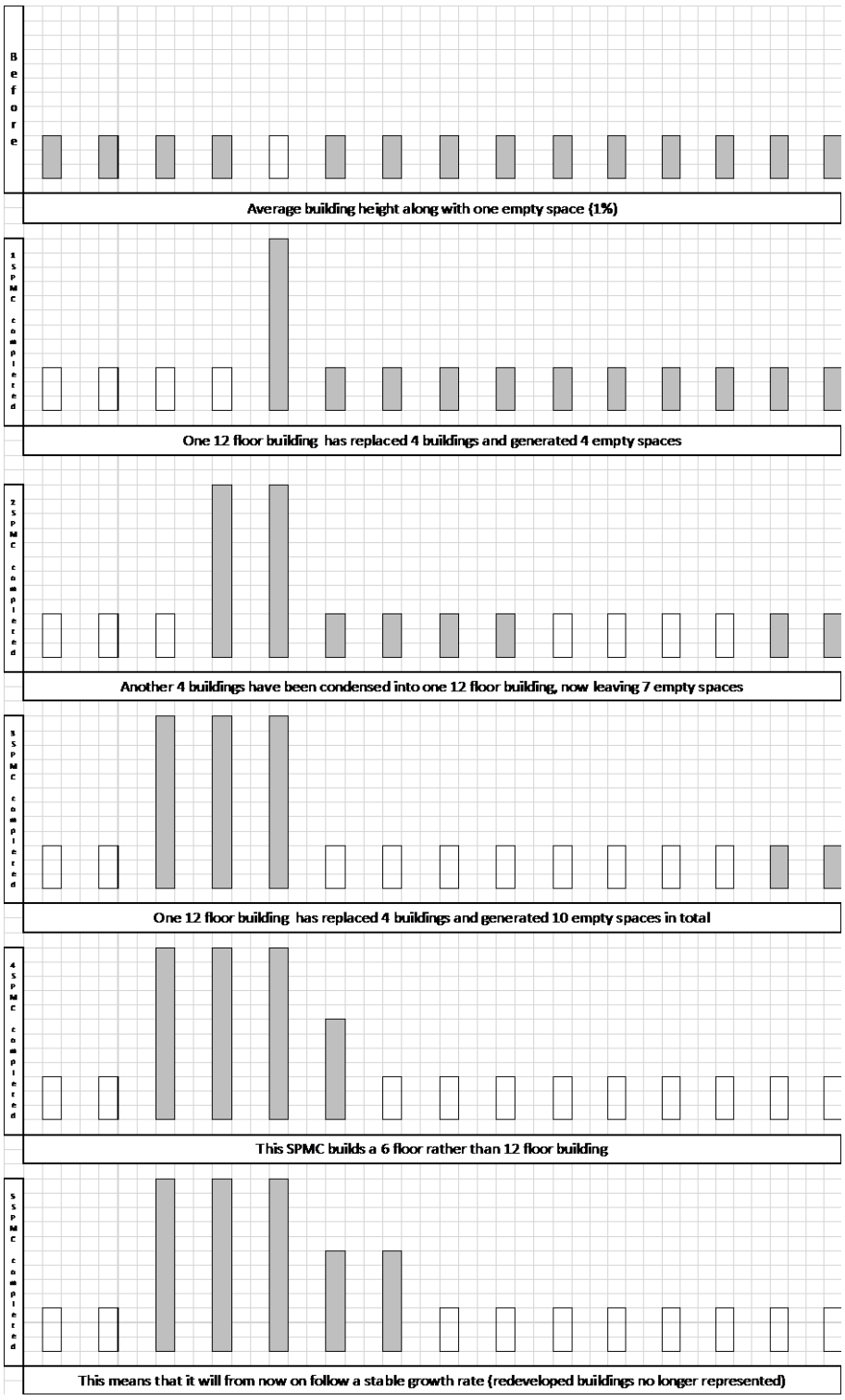

Figure 38 – How the Sliding Puzzle Model can be used to free up new empty spaces and what target building heights are needed for the multiplication of new empty spaces

However, the Sliding Puzzle Model can be simply used to build new housing, whereby the new buildings have an additional amount of floors that are then owned by the entity leading the redevelopment- *ideally, the Municipality*. The following graph demonstrates the capacity gains that can be obtained using the

Sliding Puzzle Model using a virtual environment in which the initial buildings to be redeveloped have 3 floors:

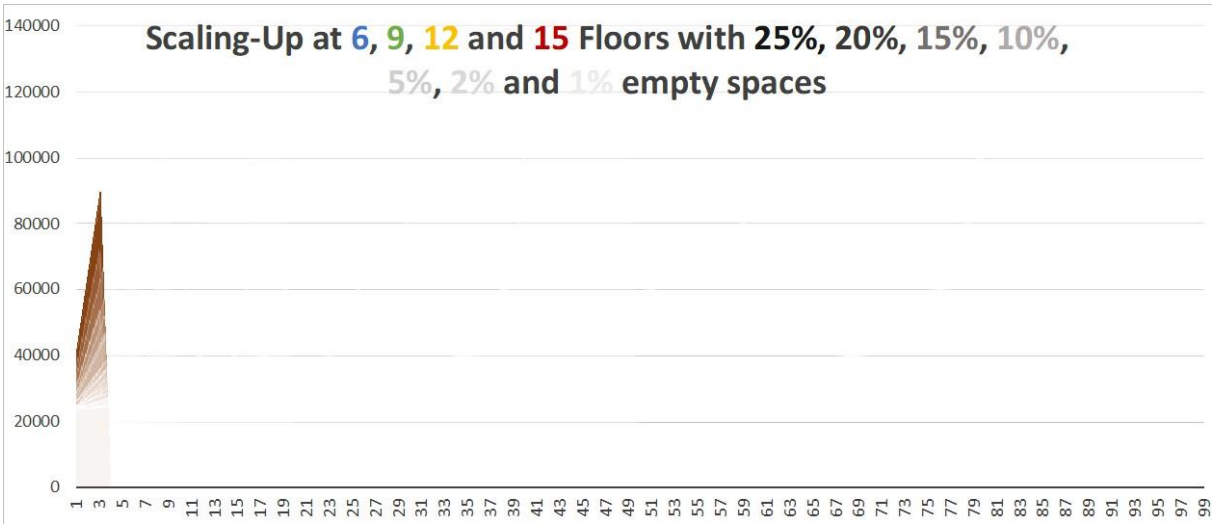

Figure 39 – The capacity gains that can be attained by using the Sliding Puzzle Model using a virtual environment with the initial building height at 3 floors.

It is important to note that these capacity gains are the overall capacity gains, but perhaps in this context it's most important to note that the capacity gains come from the extra floors that are built- these extra floors can, for all intents and purposes, be dedicated to public housing. And since the other floors are used for relocating tenants from previous buildings, the Sliding Puzzle Model not only allows for increased occupation, height gains and extra floors- *it would allow for the one and same building to be privately and publicly owned.* If, for example, the option chosen is for the new buildings to have 6 floors, and again referring back to the virtual environment in which the initial buildings have 3 floors, then the new buildings would be, assuming that the original buildings whose tenants are being relocated were privately owned, half privately owned and half publicly owned. The publicly owned floors can then be resold or rented in order to finance the Sliding Puzzle Model program, but they can also be used for social housing initiatives. If achieved, this would allow for less segregated public housing as public housing tenants would be sharing buildings with private owners.

Diffuse and Mixed Social Housing – A Solution to Past Limitations

There is a general consensus surrounding the need for public housing to be mixed-income, however, this component is not enough if it is not paired with, at best, significant measures to promote the participation of inhabitants, and at the very least, not resorting to forced displacement and coercive relocation[15]. Past mistakes surrounding social housing can lead us to identify two elements that were and continue to be central to the ongoing problems associated with public housing projects- *segregation* and *evictions*. Social housing projects are therefore increasingly attempting to incorporate two elements- integration as opposed to segregation (of different income groups, ethnicities, etc.) and participation as opposed to unilateral imposition. But these are merely axioms which can be used to guide public housing initiatives, the question remains- *what mechanisms and instruments can we apply to drive the building of new public housing projects that are integrated and participatory?* This section will discuss the ways in which the Sliding Puzzle Model can be used as part of social housing initiatives that can, in virtue of the Sliding Puzzle Model's intrinsic characteristics, avoid the pitfalls of past social housing programs, namely, segregation and coercion.

The Sliding Puzzle allows for the building of housing regardless of whether the location be peripheral, or not. Since it relies on the relocation of existing tenants from buildings that will then lead to the generation of a new space, all that is needed to start the initial Sliding Puzzle Model cycle is one empty space- and if this space is in a city centre, it will generate new empty spaces and thus new opportunities for building within city centres. The image below demonstrates how the Sliding Puzzle Model pivots empty spaces within relative proximity allowing for the reconstruction of areas, thus allowing for new housing to be built:

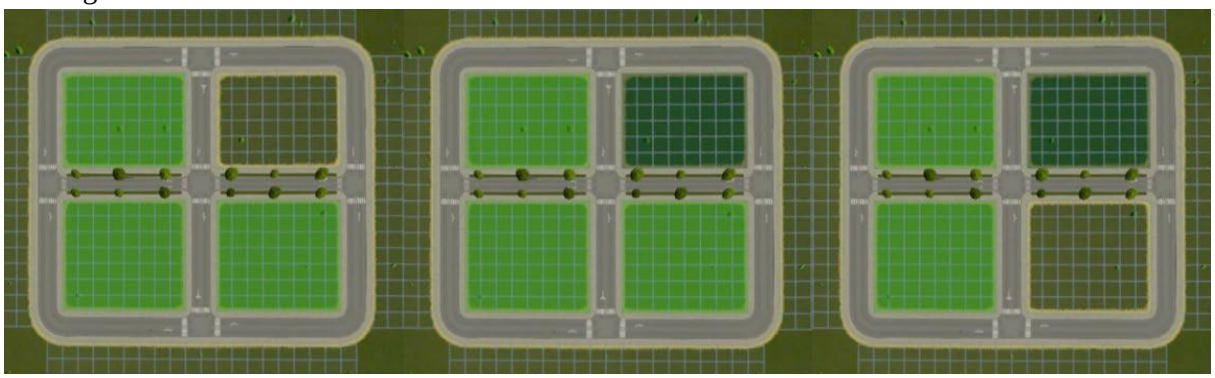

Image 2 – A full Sliding Puzzle Model cycle[16]

CONCLUSION - CITY COUNCILS ARE SELLING THEIR SWORDS

One of the disconcerting but constructive conclusions we can reach is that in abstaining from investing in housing in general and in public housing in particular and yet at the same time, not abstaining from exerting legislative control over many aspects that relate to housing, Municipalities are in breach of the social contract. As we discussed extensively, Municipalities have not withdrawn from interacting with the housing market and its regulatory dimension.

In order to shed light on what the new dynamics between Municipalities and housing we propose a metaphor that draws from medieval history.

As is related to us by an expert of the history of the city of Lisbon speaking of Medieval Council policies: "Another example of abuse of power was related to confiscation of arms, with the warden receiving half of the fine attributed for illegitimate possession, and for this reason weapons were often improperly confiscated. After the weapons were confiscated, they were sold at city fairs under the watch of the clerk, and the proceeds reverted in favour of the Council [then referred to as *Alcaidaria*]"[17].

The imagery invocated by this episode is fascinating. A violent, unruly, European medieval port City where Council officials would patrol the streets with their longswords, constantly getting involved in swordfights during which, if victorious, they would confiscate inhabitants' swords, only to proceed to sell those very same swords in the market so as to levy funds for the Council, which would then return to the streets, and so on.

But there is an even more interesting image that we can fathom. Imagine if the Council was so short of funds, say, as a result of a financial crisis, that the wardens sold-off their own swords along with the swords they confiscated? If they did, surely the result would be that they soon would become unable to confiscate swords in the first place and be quickly overcome by medieval thugs of all sorts. The city would be thrown into chaos as a result of the Council's short-sighted policy.

Though somewhat caricatural, this example is perhaps the best way to illustrate the Lisbon Council's current housing policy, as it is in the process of an unprecedented sell-off of Municipally-owned buildings, a large part of which could be used for housing. By selling its property seeking short-term investment, it is also limiting its ability to fulfil its duty and solve its inhabitants' problems, just as the

wardens would have done had they sold not only confiscated swords, but their own also. Furthermore, if the housing policy described in the first section of this article were to be implemented, there would be a medium and long-term financial incentive for the Municipality- instead of continuing with its limited and highly flawed housing policies of the past and present, converting a high percentage of its current housing stock into properties that would be rented for prices considerably below the current market values, it would not only positively affect the market prices overall, it would receive through this programme a steady stream of income that it could then re-invest into purchasing buildings, increasing its stock incrementally, therefore also increasing its capacity to affect the market prices.

Once again, Madden and Marcuse's "In defense of housing – the Politics of Crisis"[18] sheds some further light on the widely-held concept that public housing represents an unjust burden on taxpayers and that it skews the housing market in a detrimental manner:

"The idea of a meddling state ignores two major facts. The first is quite simple: all of the federal money spent on public housing and other direct subsidies for working-class and poor households pales in comparison to the money spent subsidizing wealthy and middle-class homeowners…

"Second, and more importantly, the picture of government interference implies a false account of the relationship between housing and the state. It posits the state as an alien intruder into an autonomous housing market. The market is imagined as a rational sphere that operates more efficiently the less the state intervenes, and which would operate perfectly if the state left it alone entirely.

"In fact, housing has always been dependent upon, and integrally tied to, state action. The government is involved in making housing possible in multiple ways. The state plans and builds the streets on which homes are located. It certifies the materials and techniques out of which houses are constructed. It regulates, or directly supplies, the infrastructure for electricity, water, sewage, and transportation upon which housing depends. It provides the means to enforce contracts and define the legal relationships that make possible the buying, selling, producing, and leasing of housing. It enforces the legal sanctity of the home from intrusion and violation. It constructs and protects the property rights that make landlordism and tenancy possible. It influences the extent to which capital is used for housing or diverted from it."

And one might ask, *where would the funding come from?*

"Funding for building new public housing should come from general government revenues, so that it does not become dependent upon luxury development, as with inclusionary zoning. New public housing could also be funded by redirecting the hundreds of millions of public dollars given away as subsidies to corporate real estate. Public housing can become a mechanism not only to provide shelter, but also to relieve stress from elsewhere in the housing system. The more public housing is a desirable, accessible, and affordable option, the less scope exists for exploitation by private landlords. Public housing can also help deal with some of the shortcomings of private homeownership. A proposal for a "right to sell" offered by the British geographer Danny Dorling and others would allow private owners in financial distress to sell their homes to local governments and become secure public tenants, avoiding foreclosure while adding to the public housing stock"[19].

"But we should not aim to uncritically adopt twentieth-century public housing, which was created in very different conditions than those that prevail in cities today. The residential public sector reflected particular twentieth century class compromises and political-economic imperatives. It was designed to stabilize the Fordist–Keynesian city: to defuse conflicts, to provide jobs, to facilitate the work of private developers. This model should not be blindly copied. Public housing should be protected and expanded but also radicalized and democratized..."[20].

State intervention in the arena of housing is, therefore, not only an inevitable endeavour that the State must, and always does engage in, but furthermore, that it is not so much a question of *whether* the State will intervene in this regard, but rather *how*. The Sliding Puzzle Model as first developed in the primary, original article "The Sliding Puzzle Model for Scaling-Up Cities: How equitable and just urban development and growth initiatives can be made possible by State-enforced mandatory quotas of empty urban spaces" can provide a useful contribution towards solving the plethora of challenges that are brought up by the challenge of shaping new social housing programmes and initiatives that are both palatable to an often adverse public opinion, functionally able to tackle the challenges presented, as well as that, perhaps most importantly, avoid to fall into the pitfalls of previous social housing programmes.

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FROM URBAN SCENARIOS TO URBAN CULTURES - SEEKING A NARRATIVE FOR THE NEW ROLE OF THE ARCHITECT

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INTRODUCTION

In the 21st century, at least three widespread narratives have been elaborated to describe contemporary urban scenarios: informal cities[1], shrinking cities[2], and resilient cities[3]. Their formulation was an attempt to disclose the urban domain of today in contrast to the inherited functional and well-known modern city. However, their focus is on specific locations, depicting a partial and limited perspective. Today, the reformulation of the urban as a global domain[4] is calling for approaches that take into account all its complexities, beyond what merely stands out for its significance, density or scale.

The notion of *urban cultures* responds to this situation by adding extra operational meaning to the urban. The renewed claim for the right to the city relocates the citizens and the social movements to a central position[5], seeking the recovery of inclusiveness and spatial justice[6], and the value of the urban sphere as an open field for experimentation[7]. By applying the idea of urban cultures, we are considering the social agents, influent organizations, and alternative systems that operate within a particular territory[8]. According to this approach, what qualifies the urban is not physical density but *relational intensity*. How are architects today contributing to the development of the urban when moving from planning to a societal and cultural perspective?

At the beginning of the 21st century, we got used to initiatives fostered by architects aimed at temporarily transforming an urban setting into an active, open and livable area. Many of them consisted of constructions built on-site involving participatory processes, with the extra purpose of learning and experimenting together. However, when the initiative was over, people went back to their daily routines, and most of those places to their initial state, as vacant, inactive and unproductive fields. These initiatives responded to low budget endeavours, occupied urban leftovers, and promoted ephemeral sociocultural nodes. In any case, their impact was only influential under a short-term perspective. If we acknowledge the relevance of *relational intensity* to identify the urban and understand it as a permanent condition, we could hardly consider these as successful operations. To properly qualify the urban, the impact of its *cultures* has to persist over time. In other words, a particular community has to be present, which thanks to the operation can be either reformulated, strengthened or enlarged.

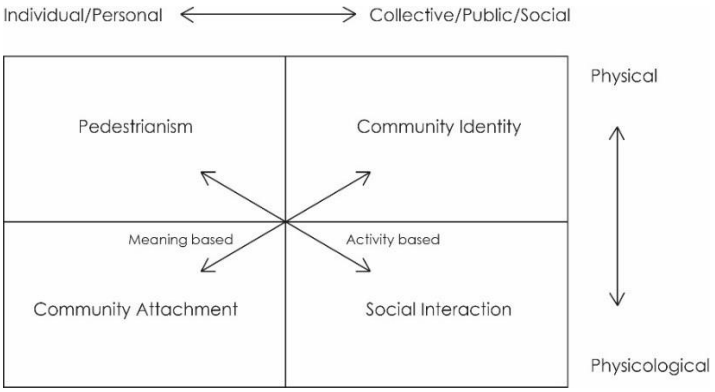

Figure 1. Domains of Sense of Community and Their Hypothesized Relationships. Kim, Kaplan.

Joongsub Kim and Rachel Kaplan, in their article: *Physical and Psychological Factors in Sense of Community*[9], claim that the sense of community is an asset in new urbanism theories and analyze the influence of different factors that may foster it. As they state, their focus is *on the role played by the physical environment in fostering sense of community*[10]. Instead, we will rather *focus on the role played by the architects in fostering sense of community.* Countless grassroots initiatives manifest a deep engagement between architects and the local communities today. This paper will analyze the potential they hold to elaborate an alternative narrative for the new role of the architect by examining three of them. They are the result of direct experiences I had with my students from Aarhus School of Architecture over the last three years, during our study trips to Detroit, Cuba, and Berlin.

Powerhouse Detroit

Detroit exemplifies the transmutation of the logic of architectural processes. Rather than grow, it decreases. Rather than build, it demolishes. Rather than occupy, it vanishes. Rather than remove voids, it expands them. It is opposed to the urban models taken into account by contemporary urbanism. For this reason, it reveals its perversions and denounces its principles, based on an idea of growth that is not always sustained or sustainable. Current guidelines and systems of thought have proven to be obsolete, making the city a laboratory for rethinking the urban setting of tomorrow.

In the last twenty years, Detroit has become the world's capital of urban farming, with more than one thousand non-profit organizations, such as *The Michigan Urban Farming Initiative*, *Earthworks Urban Farm*, or *Keep Growing Detroit*. Besides, policy initiatives such as the *Empowerment Zone*; or social and artistic ones, such as *Detroit Soup* and *Write to House*, aim to ensure the future survival of the city. The number of newly born initiatives running in the city since it hit its bottom in the eighties is countless, and the influence many of them had in alternative decaying scenarios throughout the world unmeasurable.

A couple formed by an architect, Gina Reichert, and an artist, Mitch Cope, was at the origin of one of them: *Power House Productions,* a neighbourhood-based non-profit organization funded through grants from local and national foundations. In 2008, they purchased a foreclosed drug-house from the bank in Banglatown, a so-called neighbourhood at the north-end of Hamtramck, where they had been living for several years. What initially started as an effort to keep the neighbourhood safe from crime and vandalism, 'progressed beyond defensive tactics and evolved toward initiating routine creative projects within the community'[11]. The strategy of recovering one of the decaying houses that punctuated every single street in their surroundings, usually exposed to arson or squatting, soon evolved into an opportunity to strengthen bonds between the nearby inhabitants and recover the neighbourhood's vitality.

The house was renovated, and a new common space where the neighbours could meet and organize self-driven activities created. They were the entrepreneurs of a social catalyst that awaited the neighbours to take ownership of their own community and cooperate in its development.
The new name of the place, Powerhouse, is not only given by the fact that it produces its own electricity but also as a clear reference to the empowerment of the people, 'becoming an example of self-reliance, sustainability and creative problem solving through education, communication and increased diversification of the neighbourhood'.

Figure 2. An abandoned house in a residential neighbourhood. Detroit, 2017

Figure 3. Power House. Detroit

To this initial endeavour, other similar operations joined over the following years. Several scattered constructions within a four-block radius were also purchased and transformed, this time with the collaboration of neighbours, friends and artists. They are the Yellow House (office space); the Jar House (research centre, archive, and library); the Sound House (experimental music studio); the Squash House (sports arena and greenhouse); and the Play House (theatre and cinema), where movie nights are organized for the children of the neighbourhood. The last addition to all these constructions reactivated a vacant outdoor space. It is the Ride it Sculpture Park, where different generations meet and socialize in a public area around an activity loved for many: skating.
Banglatown, formerly a diverse and multiethnic district with Bangladeshis, Eastern Europeans, and African Americans as its inhabitants, houses today a new urban tribe formed by creative young people, artists, architects, and social geographers, that moved there and took part in the reconstruction groundwork. This informal, but local, network of creative professionals envisaged their neighbourhood as an innovative experiment in sustainable design, social change, and urban renewal. The project attracted remarkable attention from the beginning and was published in many social media. However, as Mitch Cope reminds, they always saw it as 'a long-term community plan, not a fancy art project'[12].

Hershey Proyecto Cultural

Camilo Cienfuegos, formerly known as Hershey, is a small town founded in 1917, by Milton S. Hershey, the American chocolate emperor in Cuba. It was built alongside the sugar refinery created to supply Hershey's chocolate factory in Pennsylvania. The town was to house the workers and their families, and it was designed according to the accustomed American urban planning principles in the early 20th century. The layout consisted of a grid of streets divided into equal plots where a few different house typologies –according to the employment levels of the workers- were thoroughly implanted. Even though it was not a large settlement, it was equipped with all the facilities a city needs: market, cinema, school, stadium, clinic, hotel, library, etc.; making it a miniature metropolis. Moreover, Hershey's

development also motivated the construction of the first electric railway in the country in 1922, which connected Hershey and the capital, Havana, situated around 50 kilometres away towards the west.
The sugar factories, called Centrales in Cuba, were the symbol of the industrial and economic development in the country, and the one in Hershey was outstanding among them by its size and productivity. The complex was a private endeavour run by Hershey's company until the public authorities took control after the Cuban revolution in 1959. In 2022, it was finally shut down as a consequence of the restructuration of the sugar production on the island. It could be an ordinary case of industrial heritage composed of scattered industrial remnants that deserve to be documented and protected. However, the existence of the industrial facility caused the emergence of a community around it. The refinery and the town are in tightly bond to each other, conforming a unique entity that acquires the status of cultural heritage. The preservations policies, thus, might consider not only the industrial remnants but also the urban setting and its social structure, determined by a high sense of belonging of its inhabitants. However, the lack of economic, and probably political, instruments in the Cuban regime to ensure the preservation of the installations, triggered the emergence of an alternative model.
Two architects from Havana, Renán Gonzalez García and Oliesky Fabre, initiated the project 'Proyecto Cultural AI&P_ arte, industria y paisaje' in 2009, with the aim of economically revitalize and socially reanimate the site. Their strategy not only involves the creation of a set of guidelines to protect and recover the remaining buildings. It also includes becoming part of the local community, engaging with its inhabitants, and implementing a new vision towards reawakening the town's cultural identity, so much damaged after the closure of the factory.
Their project is undoubtedly another long-term venture developed in three simultaneous levels, each of them operating at a particular scale. On one side, it works very closely with the local community to unveil and share the values of their inheritance, and eventually incorporate them as stakeholders and contributors of the project, in shared ownership cooperation. At a middle level, it aims to create an exemplary pilot program to be implemented in the many other sugar towns decaying all over Cuba. On the bigger scale, it attempts to raise international awareness, in diverse forums and media, and get the necessary support -academic, political, and financial- to pursue their long-term goal-oriented ambition.

Figure 4. Central Hershey. Camilo Cienfuegos, 2019

Figure 5. Workshop organized in collaboration with Aarhus School of Architecture. 2019

The collective is today integrated by several professionals. A few years ago, they got permission to establish a permanent operation centre at the power station of the old factory and transform some of its spaces into a cultural venue. In March 2020, they got an official endorsement from the municipal government of Santa Cruz del Norte. Many other public institutions, related to industry, heritage, culture or tourism are today supporting the initiative.

With the local contribution from the town's neighbours and the institutional and international support, the project aims to strengthen the socio-economic and environmental resilience of the place through interventions such as soil restoration, permaculture, circular economy, models of social governance and the preservation of industrial heritage. Urban and architectural design is the basis for the coordination strategy and the architects, therefore, operate of mediators between the different disciplines, fields, and actors.

Haus der Statistik Berlin

Berlin is not the place that inspired the understanding of a city as an archipelago anymore. The combination between constructed mass and urban voids that defined its character after the fall of the Wall and the reunification of Germany does no longer exist. At least as a condition that defines and explains the whole metropolis. Over the last thirty years, the vast amount of empty spaces and vacant structures, available at affordable prices, attracted several thousands of citizens to move and settle there, which considerably improved the social diversity and vitality of the city. As a result, Berlin partially recovered its density and experienced a noticeable increase in its urban life's intensity, making it one of the most vibrant European cities today.

As a probably but not desired consequence, a well-known contemporary phenomenon also infected the city, replacing its past physical porosity with an uninterrupted economical stain: the gentrification. Therefore, the remaining vacant structures are not subjected to the rules of affordability, but of speculation and economic benefit. One of them is Haus der Statistik, which stands out for its prominent location, in the proximity to Alexanderplatz, and its vastness, having 50.000 square meters of empty space, since is was abandoned in 2008. It was supposed to be sold to investors and demolished, but by 2015 those plans were prevented and, in 2017, the place was acquired by the Federal State of Berlin.

This building is used today as a new model of cooperative urban development oriented towards the common good, run by the *Haus der Statistik Initiative*, a group of architects, artists, social and cultural institutions, foundations, local associations, and politicians. It conforms a particular mixture of top-down and bottom-up processes in which the local administration and an informal initiative work together and share responsibility towards the development of the place. The most recent plans for the complex include around 65.000 sqm. of new spaces for art, culture, social affairs, education, affordable housing, refugees accommodation, administrative uses and a new city hall for the district of Berlin-Mitte.

From the beginning of this initiative, back in 2015, the project was organized as an open and collaborative process. Informing the public and inviting them to be part of the decision-making process is part of the implementation strategy. Therefore, network meetings are organized to tell about the current status of the project and collectively discuss its key aspects. Today, the project achieved an extraordinary complexity, being development at several scales, with a strategic plan that operates within different timespans, and the involvement of many stakeholders organized around the Koop 5. This new entity encompasses the five main cooperating partners: the Senate Department for Urban Development and Housing, the District Office Berlin-Mitte, the state-owned companies WBM Wohnungsbaugeseelschaft Berlin-Mitte mbH and BIM Berliner Immobilienmanagement GmbH, and ZUsammenKUNFT Berlin eG.

Among the self-defined objectives for the model project are 'the common and mutual responsibility, which continues into use; the obligation to integrate the broad involvement of the urban society in the process; and the creation of own sustainability standards'[13]. Their formulation sets the basis for the long-term development of a lively neighbourhood oriented towards the common good.

Besides this intricated partnership and its ambitious goals, a small information and participation centre has been created in a tiny construction at the ground level attached to Haus der Statistik. This shift in

scales between the total dimensions of the building complex and the pavilion represents the contrast between the enormous operating partners and the few people that is ultimately running this urban endeavour. The place, a former workshop, keeps its original name, *Werkstatt*, to refer today to the work-in-progress condition of the initiative. It operates as a mediating space where weekly events are organized as part of the dissemination strategy of the project, which is developed in many ways and formats. Furthermore, its presence in the media is assured due to its prominent location in Berlin and the partners involved.

Figure 6. Haus der Statistik. Berlin, 2020

Figure 7. Event at Werkstatt organized by Aarhus School of Architecture. 2020

The three analyzed initiatives emerged in very different contexts -Detroit, Cuba, and Berlin- but share a manifest commitment with the local communities around them. Other common defining elements are the attempt to cover the economic costs via mixed fundraising, the ambition to create permanent interventions -placed in prominent areas-, and the aim to strengthen the existent sociocultural bonds; all these resulting in long-term impact endeavours.

Thanks to them, we can assert that the interaction between different groups of people and the connections they have with processes operating at diverse scales are also an integral constituent of the urban domain. As we said before, we have detected a shift in the urban discourse from a context-based approach -understanding the context as the physical, environmental, economic, historical, and political layers operating in a particular territory-, towards an approach that relocates the citizens and social movements to a central position. In other words, from urban scenarios to urban cultures.

New discourses are asking to reintroduce the criticism of the mid-20th century to contemporary urban development[14], which put the social commitment at the forefront of the debate for the formulation of more livable and equal cities. Among them, we can highlight the critic to the neo-liberalist city by David Harvey[15], the theory of degrowth by Serge Latouche[16], or the concept of commoning coined by Peter Linebaugh[17].

It is precisely the later -the commoning- the movement that has recently acquired a special status among the scholars interested in architecture that engages with society. Most probably, because it embodies the other discourses, but also for its easy translation into an urban approach and strategic vision.

According to its promoters, commoning is a set of social practices that deal with the production and management of collective resources and spaces, mutualized for the benefit of the citizens. It regenerates social connections, identities, and cultural values, beyond what is strictly dictated by the market. The new urban setting they propose is informal, tactic, experimental, sustainable, and, on top of all, community-based. Therefore, the commoner is anyone participating in this movement, which is open, inclusive, and participatory.

Then, what differentiates the architect from other citizens when taking part in the commoning? What is the role of the architect and the narrative associated with it? If the urban scenarios of tomorrow are defined by the commoning, which moves the focus towards the urban cultures, the architect plays the role of the creative agent; open to connect, share and build in common.
The described experiences in Detroit, Hershey, and Berlin suggest that there are three initial elements defining the performance of the architects of commoning: they launch the initiative as promoters, perform as mediators, and partake with their creativity. A fourth one seems to be essential to understand and evaluate the success of their contribution: they become part of the community.

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Front cover image: David Holt

City, University of London | AMPS
London: 17-19 June, 2020