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The City and Complexity

Life, Design and Commerce in the Built Environment

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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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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.

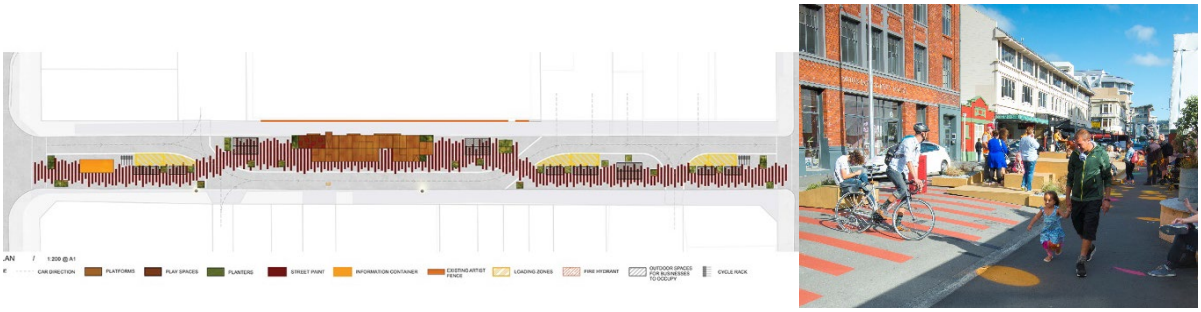

Figure 2 – Overall plan and central area (from left to right)

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.

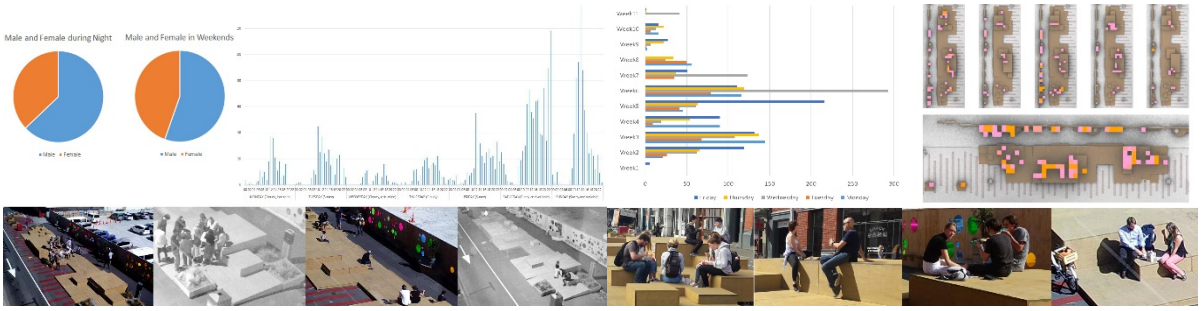

Figure 6 – users by gender, total users, users at lunchtime (from left to right)

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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SIGNS IN SPACE, PACE, PLACE AND POPULAR CULTURE IN A POST-INDUSTRIAL POOL

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"Once, as I went past, I drew a sign at a point in space, just so I could find it again. Recognizable, yes, beyond any possibility of error…. I couldn't help thinking about when I would come back and encounter it again…. and how happy it would make me, in that anonymous expanse."[1] The void plays an important role in how we bring things into being, as Nietzsche says, "man would sooner have the void for his purpose than be void of purpose."[2] Our signs in space develops our places which could be considered as ever-changing determinations of the continuum, however traits of places in space precede us which is probably why Calvino's sign maker is a planet. Place, as a construct of space and territorial signing, is then considered prior to space although it's the signs that we preferentially reference. Our serial cultural signing generates constellations of places as city. A habitable palimpsest of abstracted signs, from a manipulated redistribution of the earth.

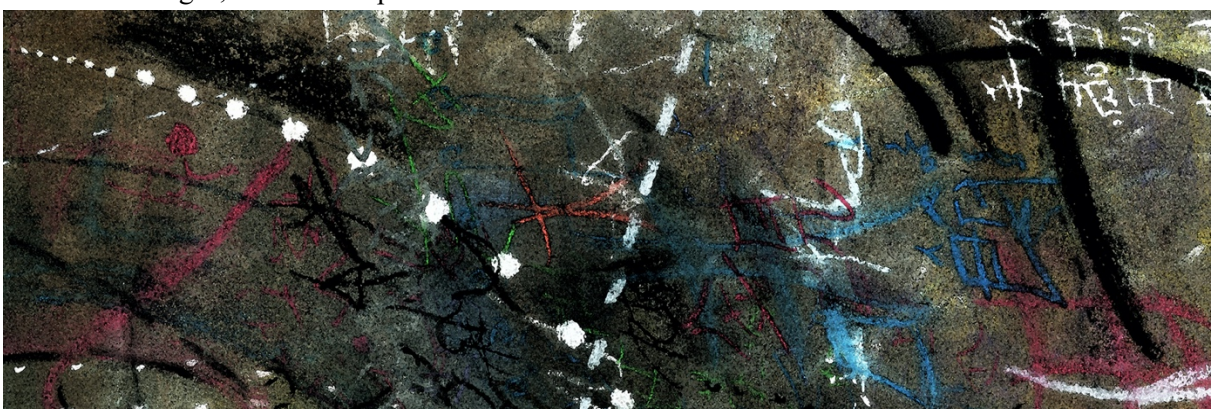

Figure 1. Returning to the place he had signed he found a palimpsest of signs, a graffitied space.

Walls are our prolific signs of habitation, emerging as a composite of actions through space then with a fold, a mere 'tweak,' of the spatial continuum they produce both nowhere and everywhere, a 'determination,' of the continuum as inner and outer space. As time - territory determinants, these walls become the sign of the folded space, a symbol of the inside and outside, as a fluctuating dilemma of inclusion and exclusion similar to the 'yes no' phenomenon of language. These walls and the public territories that they delineate such as the streets and squares of our cities are the vessels that enable the 'other' to mediate between our-selves and the world at large. They affirm who we are as the 'other' that affirms our being and constructs self in Hegel's 'recognition as a confirmation of reality.'[3]

Without the 'other' self could not exist, consequently this 'other' is integral to self as a cultural unity. "The more important, significant and essential we consider the other, the more real the others recognition can make us."[4] This 'other' of an entity juxtaposition doesn't just affirm in a self-caressing way it also initiates passion, inquisitiveness, eroticism, fear, a dangerous experience of experimental predilection associated with the 'other' as unfamiliar alien entities and territories.[5]

This 'other's' affirmation as cultural unity effects a sociability with others developing our ability to communicate and work together to achieve complex tasks consequently our success as a species. "Any large-scale human cooperation… is rooted in common myths that exist only in people's collective imagination."[6] These myths are imagined realities such as money, law, religion that effect large scale cooperation even with strangers and consequently our accretion in large numbers at topographically beneficial edge locations forming matrices of walled enclaves and constellations of places as city. Liverpool similar to many other cities located along such an edge emerging along the river Mersey as a city of exchange between water and land around a natural dock termed the pool. The dock system grew rapidly along the river's edge as did the supporting territories of warehouses. Liverpool's centre has fields of these warehouses on either side. One of these fields with distinctively narrow streets called the Ropewalks district became redundant in the sixties, when the ports function changed following containerisation. The district falling into disuse and disrepair, as did much of the city. The city was politically and socially abandoned by the nation from the sixties until the millennium existing in a liminal state where the usual social constraints were suspended.

Figure 2. Rise of the neo-tribes the creatives outside the Shipping forecast in the Ropewalks district.

Liverpool's music and dance scene were however throughout this isolation, vibrant! The city has an industrial base and is renowned for its popular cultural excesses in sport, music and dance. "Popular culture can refer broadly to common aesthetic or life practices, in both the statistical and qualitative senses… it is mass produced … and… mass consumed."[7] Liverpool during this period became a city with a distinctive edginess and a none conformist attitude, an attitude that frequently develops localised creative atmospheres.[8] The city's creatives were a cliquey, competitive, collective that possessed few financial resources consequently their occupation of the fields of vacant warehouse spaces could at the time be considered a legitimate option in their endeavours to develop unique artistic events within the vacuum. Liverpool's creatives clustered into the Ropewalks district in the late 1980's developing art studios and impromptu drinking and dancing dens. The cellar music culture initiated in the sixties, seventies and eighties at venues such as Metro, Iron Door, Sink, Lomax, the Casa, the Everyman and more famously at Cavern Club and Eric's,[9] expanded into the warehouse spaces as an obvious precursor to the rise of house music.

This occupation of the Ropewalks could be termed the rise of neo-tribalism where "the individual becomes a provisional member of overlapping groups, and the roles that the individual plays and the masks they wear within these often temporary and transitive groups become the source of their identity. "[10] In retrospect these neo-tribes were the alternative creatives, however at the time they all seemed quite normal within Liverpool's post-industrial apocalyptic context. There wasn't any normal work, business and industry had abandoned the city as had many of its inhabitants. Alternatively, entrepreneurially artistic was in fact normal as there wasn't any other choice. Sculptors, painters, disc jockeys, musicians, photographers, architects and designers occupied the area. Setting up an alternative bar, café or dance night within the vastness of these warehouse spaces made a little money on the side to pursue your art. These alternative events rapidly became an artistic aim in themselves and in the early Nineties there were so many clubs and bars all competing for the same market, that consumers could spend an entire week within free and or cheap special nights.

These events as performances within the warehouses and their inner yards became a "process of inter-animation that occurs between individuals and specific places."[11] Animate as the 'animate organism'[12] is used by Husserl to refer to ourselves as beings whose 'animateness' forms the foundation of their perception of both inner and outer worlds. Life is inherently animate, or motive and we come to life with movement and subsequently discover our world and ourselves through movement. 'Motion through the textured landscape enables experience of our environment, moving from place to place developing our experiential knowledge.'[13] Our experience of the landscape thus emerges as a consequence of everyday life as 'an excess a "superabundance" of life.'[14] This excess being experienced 'as an inexhaustible labyrinth of unfolding processes "as the totality of possible performers immanent within it."'[15] The Ropewalks area became quite literally a "symphony of events,"[16] with constellations of internal event-places separated only by the high walls of their warehouse enclosures. Experience of this night tide district had another worldly feel to it which can be attributed to the contrast of the dark narrow streets, with their cliff like warehouse walls on either side, then the explosion of space filled with rhythm and light as one enters the vacuous warehouses. Moving from event to event was a bit like space travel between worlds. The streets were a kind of 'outer space' whilst entering the clubs was like landing in cultured worlds.

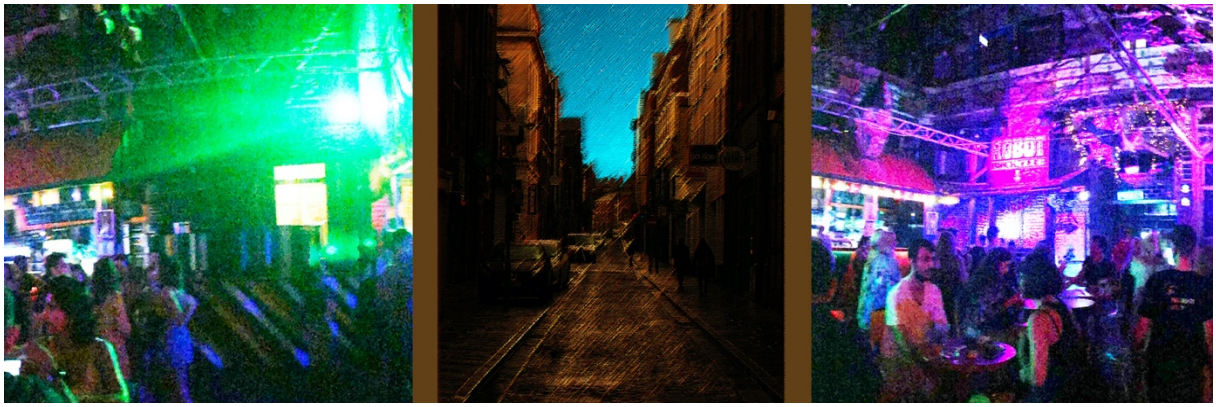

Figure 3. The outer space like quality of the streets as opposed to the cultured commons of the clubs.

Changes in our contemporary cultural acceptances explained through Baudrillard's "transaesthetics"[17] in which the hierarchy of cultural domains have collapsed in on each other and popular cultural pursuits are now considered of equal merit to all others has led to a reinterpretation and reorchestration of some city districts. Liverpool was not alone in its appropriation of fields of disused buildings

developing constellations of internal / courtyard popular cultural event spaces. A similar appropriation can be seen in the Jewish Quarter of Budapest, the Kazimierz District of Krakow and in the Kreuzberg district of Berlin. In the Ropewalks district event spaces such as Level, Planet X, Mello Mello, Kazimier, Revolution, Walkabout, East Village Arts Club, The Jacaranda, Shipping Forecast, Cosmos, Blue Angel, Alma De Cuba, Heebie Jeebies, Modo, Soho, were just some that endured. However, the most successful of these event spaces during the nineties was Nation and specifically the event that was Cream an edgy house music night initially influenced by the Manchester club, the Hacienda.[18]
What eventually tied all of these internal event spaces together was a new public space called Concert Square. The project was the venture of a new kind of developer called Urban Splash founded in 1993 by Tom Bloxham and Jonathan Falkingham for this particular scheme. They had initiated a working relationship earlier with Baa Bar a continental style bar that was the antithesis of the dark pubs surrounding it. With Concert Square 'Splash' produced something quite different to other developers of the era, rather than maximising the site with development 'Splash' made a public square, with a series of bars and basement clubs along one side and urban living units behind. This new urban space became the centre of the creatives bar clubbing culture creating 'outer space' as sign for the constellation of surrounding internalised, inner-yarded event spaces. The square acted as an 'outer space edge enabler,' a popular cultured place enabling the coming together of people and things.

Figure 4. Concert Square at night in one of its former furniture iterations around the millennium.

This square created a clearing of the warehouse walls in the Ropewalks district; a clearing of walls to create a square in the city similar to the clearing of trees to produce a glade in a forest, consequently there is an urban relationship to what Heidegger termed '*lichtung*.' This *lichtung* is a clearing as a sun light glade referencing a shared field of actions and consciousness that binds us to other things. It's an opening where other entities can emerge or become illuminated as the root of this word means light.[19] These urban places as shared fields of action are the vessels where the natural periodicities and architectural formulation generate the potentiality of 'other' experiences. Heidegger talks about the 'thrownness' of being in that we are already found in the world with 'others.' With a certain arbitrariness we exist in a particular context with all of its problems. Heidegger says of being "as thrown it is dependent upon a 'world,' and exists factically with others."[20] Doreen Massey likewise refers to the 'thrown-togetherness' of public space, "what is special about place is precisely that thrown-togetherness, the unavoidable challenge of negotiating a here-and-now… and a negotiation which must take place within and between both human and nonhuman."[21] We find ourselves thrown into situational places that offer an excessive overlapping of uses yielding potentially unique encounters and experiences. Unique encounters with the potential of emergence.

Figure 5. Heidegger's lichtung a sun light glade referencing a shared field of actions and consciousness.

Concert Square as such an emergent field in the Nineties constituted a complexity of overlapping 'other' people and things generating a creative edgy feel where this edge is a coming together of happenings, and consequently the margins are brought into the centre. This is possible due to our conviviality, as an acceptance of differences, a "conviviality mediated by the collective experience."[22] Such public spaces are on occasion referred to as "the poor man's living room, which hints at its…. ability to foster integration between different socio-economic groups."[23] The Square constituting a "complex mix of heterogeneous social interactions, materialities, mobilities, imagination, and social effects."[24] Public spaces are of course more than a city's streets and squares they're also its markets and parks and internalised spaces such as libraries and public houses and likewise the surrounding neo-tribal nightclubs as alternative commons. Public spaces as living rooms bestow a certain comfort and consequently openness where we are willing to tolerate the 'other.' There is a certain accepted code to these spaces that generates a kind of equality, freedom, a form of commons that makes them key spaces of popular cultural events.

As particular place Concert square is surrounded on three sides by the characteristic high warehouses of the district. On one side this is alleviated by the lower level bars of the development allowing the summer afternoon and evening sun to permeate the square. The squares extent sits across a slope, consequently its spatial extent is delineated by slanting stairs up to the north-east and slanting stairs down to the south-west. The bars Soho and Modo sit on a plinth accessed by stairs that extend into the square enabling a zoned differential of bar and lounge external social spaces. Behind the bars is 'Splash's' refurbished warehouse containing its urban living units which became surprisingly popular at the time of their completion. The square has had numerous iterations of finish and furniture. In the Nineties, surrounded by alternative cafes and clubs, it was quite open, defined only by the stairs and a sculpture, its furniture consisting of lightweight tables with small integral umbrellas on one side of the square. Larger umbrellas and benches filling the entire square were introduced about six years later responding to its growing popularity and commerciality. Later still stone filled gabion walls enclosed the square as a response to local drinking rules. Recently mobile roofs have been installed along the edge of Concert Street the most definitive response to date to the square's popularity and our distinctive British weather. The square has developed certain habitual timings which may be more to do with the expectations of its users than of it as place. Summer weekends there are barbeques throughout the day drawing in the day long drinking culture, evening tide the atmosphere changes as the older millennials and couples emerge from the restaurants and continue the evening in the bars and

clubs in and around the square. The younger millennials don't appear before midnight meet and greet in the square for pre-drinks then party in the surrounding nightclubs until five or six in the morning. Occupying a corner of the square in the early evening, the space becomes a see and be seen "place ballet,"[25] a dance that is reminiscent of our extended present[26] as we are integral with a space-time where the 'dance' is its flowing continuity.[27] The square is distinctive but referential of universal place linked to all other places and networks that extend globally in a kind of interconnectedness where all times and histories have become one.[28] Observing the unfolding events inevitably stimulates associations with other places and times, the sun and 'people-watching' conjures up Placa Reial in Barcelona. The complex flows of groups across the square relate to the crazy road crossings near Hachiko in Tokyo. The beefy bald bouncer, expanding his suit at the stair entrance, reminiscent of a night in the ruin-bars of Budapest. The square also reflects our current media culture, our phones, tablets and urban screens have become integral with our places. Our leisure expectancies formerly associated with social relaxation have accelerated into excessive, consumption experiences of food, drink, dance, transport and sex, exemplified by Just-Eat, Deliveroo, Uber and Tinder. We and our places are likewise network linked to instantaneously accessible pleasures.

Figure 6. The square on a sunny weekend before the lockdown with mobile roofs along Concert Street.

Concert Square has developed its own rhythmic particularities unfolding to variably paced hi-fi and lo-fi[29] activities at different times of the day and week. As place it constitutes "serial constellations of temporalities,"[30] of "tempo, timing, duration, sequence and rhythm as mutually implicating structures of time,"[31] "as an entanglement of rhythmic process."[32] It illuminates a set of particularly popular cultural routines hosting repetitious social sessions of eating, drinking, music and dance. There's a night tide emphasise when it becomes a hubbub of social encounters within the soundscape of popular music rhythms. This soundscape is reinforced by the respondent body beat resonance to vibrations felt in the soles of the feet and the sternum of the chest. It's an immersive environment in which its particular characteristic rhythmic ensemble captures un-beknowing by-passers diverting them into its midst to resonate with its tempo. Negotiations through the bodies, objects and signs within the square appears convivial which one wouldn't expect within such an entanglement of repetition and difference. There appears to be a civic group consciousness some kind of tacit agreement that we exist with 'others' "a civic culture of tolerated multiplicity and shared commons."[33]

The squares night tide beat is disrupted by frequent unpredictable flows from the surrounding bars and event spaces in particular into and out of the integral 'TARDIS' like underground nightclubs of Soho and Modo.[34] Each flow's initiation is inconceivably mysterious, there appears to be a sign, a signal known amongst a certain collective and part of the pulsating nightclub mass starts to congeal and flow differentially in a cooperative movement through the club. The boundaries of individual selves

seemingly disappear in this intentional flow simultaneously moving and intercommunicating holistically and is unaffected by tangential crossing streams of others that move through them with some unspoken form of mutual cooperation.[35] This animated holistic group spills into the less animated but crowded gatherings of the square, their unity breaking into several separate pirouetting groups momentarily before exiting the crowded square in separate streams in different directions towards other nightclubs associated with their social allegiances and cultural tastes. They / we become for an instant integral with the other.

Concert Square rapidly became a victim of its own success, it became overtly commercial within a decade, the creatives moved to the other areas of the city their alternative lifestyles seeding the Baltic Trangle, the North Docks and the Fabric District. Commerce isn't far behind.[36]

Figure 7. Simultaneous flows of parts of the crowd moving across each other in mutual cooperation.

NOTES

[1] Italo Calvino, "A Sign in Space," in *The Complete Cosmicomics*, ed. Italo Calvino. Translation by M McLaughlin, T Parks and W. Weaver. (London, New York: Penguin Modern Classics, 2011), 32.
[2] Edward S. Casey, *The Fate of Place: A Philosophical History:* (Berkeley, Los Angeles, London: University of California Press, 1998), 03. Casey is quoting. Fredrich Nietzsche, "On the Genealogy of Morality," in *The Birth of Tragedy and the Genealogy of Morals,* Translation by F, Golffing. (New York: Doubleday Anchor, 1956), 299.
[3] Heikki Ikäheimo, "Hegel's concept of recognition – What is it," in *Recognition – German Idealism as an ongoing Challenge,* ed. Christian Krijnen. (Leidon, Boston: Koninklijke Brill, 2014), 11-38.
[4] Philip J. Kain, *Hegel and the Other. A Study of the Phenomenology of Spirit*. (Albany: State University of New York Press, 2005), 43.
[5] Elizabeth Grosz, "Thinking the New: of Futures Yet Unthought," in *Becoming's: Explorations in Time, Memory and Futures,* ed. Elisabeth Grosz. (New York: Cornell, 1999), 40. Grosz doesn't just see the novel but any possible unforeseen outcome, saying "In seeking an open-ended future, one is not required to affirm that misnomer, free will, but to acknowledge the capacity of any future eruption, any event, any reading, to rewrite, resignify, reframe the present."
[6] Yuval Noah Harari, "The knowledge Tree," in *Sapiens: A Brief History of Humankind*, ed. Yuval Noah Harari. (London: Harvill Secker, 2014), 20-40. The complex subtlety of our language means that we can develop fictions that "enable us to imagine collectively weaving common myths that give Sapiens the unprecedented… ability to cooperate flexibly in large numbers." These collective imaginations are invisible values such as money, religion, state, law that 'enable us to co-operate in large numbers with others, even with strangers.'
[7] Holt N. Parker, "Toward a Definition of Popular Culture," *History and Theory* 50 Wesleyan University (May 2011): 152, accessed July 16, 2020, www.jstor.org/stable/41300075. Parker is quoting the Olick, Encyclopaedia of Aesthetics, IV, 44.
[8] Sarah Cohen, "Music as a City Business: Trial Tribulation and place in a Labour of Love," in *Decline, Renewal and the City in Popular Music Culture. Beyond the Beatles*, ed. Sarah Cohen. (New York: Routledge, Taylor and Francis, 2017), 95-122. Chapter four gives an insight into the competitive nature of Liverpool's creative music industries during the Nineties.
[9] Sarah Cohen and Robert Kronenburg, "Cellars," in *Liverpool's Musical Landscapes,* ed. Sarah Cohen and Robert Kronenburg. (Swindon: Historic England, 2018), 79-94. The chapter on the musical cellar culture of Liverpool explains the origin of the cellars in the centre of the city for the storage of goods which became vacant due to the fields of warehouses built later on the perimeter of the city. They were spaces with particular acoustic properties hence their popularity. There is also a series of maps at the rear of the book that give an indication of the numerous live music venues in Liverpool.
[10] Simon Dawes, "Introduction to Michel Maffesoli's From society to tribal communities," *The Sociological Review*, Vol. 64, Oxford UK and Malden, USA: John Wiley & Sons Ltd (2016): 736.
[11] Keith Basso, "Wisdom Sits in Places: Notes on a Western Apache Landscape, in *Senses of Place*, ed. Keith Basso and Steven Feld. (Santa Fe: School of American Research Press, 1996), 56.
[12] Edmund Husserl, *Ideas: General introduction to Pure Phenomenology:* Translated by W, R Boyce Gibson, (London and New York: Routledge Classic), 2012 et al.
[13] Tim Ingold, "Footprints through the weather-world: walking, breathing, knowing" *Journal of the Royal Anthropological Institute* 16 Supplement s1 (2010): 134. "Inhabitants are wayfarers they move through the world – and their knowledge - grows along the paths they take."
[14] Georges Bataille, *The Accursed Share: An Essay on General Economy,* Volume 1 Consumption, (New York: Zone Books, 1989), 27-29.
[15] Mitch Rose, "Landscape and labyrinths," *Geoforum* 33 (2002): 462-3.
[16] Filipa Matos Wunderlich, "Place-Temporality and Urban Place-Rhythms in Urban Analysis and Design: An Aesthetic Akin to Music," *Journal of Urban Design*, Vol 18 No3 (2013): 393, https://doi.org/10.1080/13574809.2013.772882
[17] Jean Baudrillard, "Transaesthetics," in, *The transparency of Evil*, translated by James Benedict, (London and New York, Verso 1993),14-19. first published as *La Transparence du mal. Essai sur la phenomenes extremes*, (Paris Galilee 1990). Liverpool's post-industrial landscape has invariably been defined by its popular cultural hauntings and anticipations and with the collapse of cultural domains, these popular cultural pursuits have attained acclaim and international recognition. Football can now be considered as an opera of two halves

consumed worldwide. Enter any karaoke bar in the Far East and you can hear the Beatles songs being enthusiastically slaughtered every night by incongruous accents. Music, dance, food, drink, theatre, sport, art and film, together with a rich tough industrial tectonic heritage define the city's cultural character.

[18] Emily Heward, "The Hacienda closed 20 years ago today - look back at Manchester's legendary nightclub," *manchestereveningnews*, June 28, 2017, https://www.manchestereveningnews.co.uk/whats-on/music-nightlife-news/hacienda-manchester-closed-20-years-13251979 The Hacienda was a legend, a risqué night club located in Manchester. Funded by Tony Wilson of Factory Records and New Order. It opened in 1982 but didn't really take off until House came over from Chicago when the dance night Nude filled the dance floor on successive weeks. Despite its success the violence and drugs associated with the club became a problem by 1991 it was closed and sporadically reopened eventually losing its licence in 1997.

[19] Martin Heidegger, "The Origin of the Work of Art," in *Poetry Language Thought,* ed. Martin Heidegger. Translation by Albert Hofstadter, (New York: Harper and Row, 1971), 51. This refers to public squares in cities as a universal space as Heidegger's clearing is a universal space in forests. We clear the trees in order to be with the 'other' in the forest as we clear the walls to be with the 'other' in the city. Each clearing is of course ourselves, that is it is a part of our consciousness. The quote by Heidegger reads "That which is can only be, as a being, if it stands within and stands out within what is lighted in this clearing. Only this clearing grants and guarantees to us humans a passage to those beings that we ourselves are not, and access to the being that we ourselves are." This is related to Hegel's concept of recognition in that we find ourselves in otherness i.e., "to those beings that we ourselves are not" and that here is a universal relationship to 'place' as a 'lighted clearing' in that it is where urban dwellers drop their guard to be immersed in otherness. I relate her Heidegger's concept of otherness to Hegel's concept of otherness referred to earlier in the text i.e., Heikki Ikäheimo, "Hegel's concept of recognition – What is it," in *Recognition – German Idealism as an ongoing Challenge,* ed. Christian Krijnen. (Leidon, Boston: Koninklijke Brill, 2014), 11-38.

[20] Martin Heidegger, *Being and Time,* Translation by Joan Stambaugh, (New York: State University of New York Press, 1996), 351.

[21] Doreen Massey, *For Space:* (Los Angeles, London, New Delhi: Sage, 2005), 140.

[22] Ash Amin, "Collective culture and urban public space," *City*, vol 12: No1, April (2008): 19. Ash Amin is referencing, Alan Latham and Dereck P. McCormack, "Moving cities: rethinking the materialities of urban geographies," *Progress in Human Geography* 26-6 (2004): 701–724. Also, Doreen Massey, *For Space* (Los Angeles, London, New Delhi: Sage, 2005). Also, Nigel Thrift, "From born to made: technology, biology, space," *Transactions of the Institute of British Geographers* 30-4 (2005): 463–476. Also, Steve Hinchliffe and Sarah Whatmore, "Living cities: towards a politics of conviviality," *Science as Culture* 15-2 (2006): 123–138.

[23] Urban October 2015, "Public Spaces for All Designed to Live Together," Background paper for the (Habitat III Conference in Quito Ecuador October 17- 20, 2016), 03, accessed July 14, 2020. http://urbanfabrics.weblog.tudelft.nl/files/2015/10/UrbanOctoberBackgroundPaper.pdf

[24] Tim Edensor, "Thinking about Rhythm and Space," *in Geographies of Rhythm: Nature, Place Mobilities and Bodies,* ed. Tim Edensor et al. (London and New York: Routledge, 2016), 03.

[25] David Seamon, "Body-subject, time-space routines, and place-ballets," in *The human experience of space and place,* ed. Anne Buttimer and David Seamon. (London: Groom Helm, 1980), 157-8.

[26] Edmund Husserl, *On the Phenomenology of the Consciousness of Internal Time,* Translated by John Barnett Brough, edited by Rudolf Bernet. (Dordrecht, Boston, London: Kluwer Academic, 1991), 141-162. Husserl suggests a 'distended present as a just pastness and nearly newness' Protention is our anticipation of the next moment an anticipation that we project and plan for through patterns and we are as much in anticipation of our futures as we are haunted by our past. As percept beings we possess integrated past and anticipated future trajectories in which everything is flowing as variable vectors and velocities coalescing and conflicting as happenings and events. Everything is in effect becoming.

[27] Doreen Massey, *For Space*, (Los Angeles, London, New Delhi: Sage, 2005), 22. Relating to Bergson's reference point, Zeno's Paradox. "Movement a continuum cannot be broken up into discreet instants. It is because the continuum cannot be reduced to an aggregate of points that movement cannot be reduced to that which is static. Continua and movement imply on another" A picture of an instant within a dances flow, is not what the dance is.

[28] Alvin Toffler, *Future Shock*, (St. Louis, USA: Turtleback Books, 1984), et al.

[29] Schafer R. Murray, *The Soundscape. Our Sonic Environment and The Turning of the World* (Rochester, Vermont: Destiny books, 1994), 43. Schaffer coined two distinct soundscapes a hi-fi environment such as in the

countryside where sounds can be easily separated and clearly heard as there is usually little background noise and lo-fi environments such as in cities where there are many more sounds frequently as a cacophony meaning that only those sounds in the immediate vicinity can be clearly discerned from the background noises.

[30] Mike Crang, "Rhythms of the city: temporalised space and motion," in *Timespace: geographies of temporality,* ed. Jon May and Nigel Thrift. (London: Routledge, 2001), 190.

[31] Barbara Adam, *Timescapes of Modernity: Environment and Invisible Hazards* (New York, London: Routledge, 1998), 202.

[32] Doreen Massey, *World City:* (Cambridge UK and Malden USA: Polity Press, 1998), 202.

[33] Ash Amin, "Collective culture and urban public space," *City*, vol 12 No1, April (2008): 09.

[34] This refers to the TARDIS (Time And Relative Dimensions In Space) of Dr Who in which the interior space is greater than what appears on the outside likewise the night clubs built on the square have bars facing the square with additional underground bars and dance floors that run under part of the square consequently the square is a hive of activity in the evenings and you don't quit know where everyone is coming from or going to until you venture into these underground pulsating spaces of rhythmically writhing bodies.

[35] Tony Hiss, *The Experience of Place:* (New York: Vintage 1991), 03-09. In the first part of the book Hiss gives an account of exiting Grand Central Station in New York as part of a unison crowd in which individual identity is suspended," the swirling, living motion of five hundred people ----- every time I thought I myself might be about to bump into people near me, both I and they were already accelerating slightly, or decelerating, or making a little sidestep, so that nobody ever collided." Hiss, 08. Hiss refers to this experience as simultaneous perception, elsewhere it is referred to as resonance where we synchronise with the tempo of a place, which Filipa Matos Wunderlicht gives an interesting explanation of in Filipa Matos Wunderlich, "Place-Temporality and Urban Place-Rhythms in Urban Analysis and Design: An Aesthetic Akin to Music," *Journal of Urban Design* Vol 18 No3 (2013): 400-401.

[36] Liverpool similar to other post-industrial cities has a shifting creative zone, Ropewalks was the late Eighties up until the millennium. The creatives moved to the 'Baltic Triangle' in the late Nineties which is now being redeveloped with innumerable commercial projects underway. The 'North Docks' was broached around the millennium although due to its vastness (several linear miles of dockland and industrial hinterland) remains undeveloped apart from a few nodes, even though there have been large development proposals in the pipeline for several years. The 'Fabric District' was the last area to be broached but was also the most rapidly overtaken by commercial projects which overtook any of the creative interventions within a few years.

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THE POTENTIAL FOR MALTA'S URBAN OPEN SPACES TO ACT AS GREEN INFRASTRUCTURE: CONSIDERATIONS FOR PLANNING AND GOVERNANCE

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INTRODUCTION

Urban concentrations of population, if not appropriately managed, result in a number of problems.[1] Challenges engendered by the need to address trends such as: increasing mobility while decreasing dependence on private vehicles; reducing sprawl and land take up; improving micro-climates and the increasing need for effective water management in urban areas are all topics relating to the development and management of the urban environment. Such issues have a direct impact on the quality and sustainability of urban environments.[2] Although numerous nations and cities have embraced the concept of sustainable urbanization, we have yet "to successfully design and plan cities that will accommodate our economic and demographic needs while uplifting and elevating us, and…the planet and its natural systems".[3]

This paper discusses some of the research outcomes when exploring the potential for Malta's urban open spaces to act as green infrastructure, as a means to addressing urban challenges and contribute to sustainable development. In particular, it presents some of the key planning and governance considerations in doing this.

Sustainable Development and the Role Played by Urban Open Spaces

The planning and design of urban open spaces is one area within the dimensions of urban form. Various authors [4] [5] [6] [7] clearly establish the importance of open spaces in improving the sustainability and quality of the built environment. Open spaces have a direct influence on how local people and visitors perceive urban areas and how well social life functions. They also influence economic prosperity through increase in real estate value, increasing attractiveness and hence competitiveness of cities. Their environmental importance is underlined by their potential to mitigate adverse effects of climate change. [8] In fact, if urban open spaces function as green infrastructure they are "capable of addressing a broad range of urban challenges such as conserving biodiversity, adapting to climate change, supporting the green economy and improving social cohesion. To capture this potential, local governments need to plan carefully and holistically". [9]

Urban Open Spaces in Malta

In Malta, both the National Environmental Policy (NEP)[10] and the Strategic Plan for Environment and Development (SPED)[11] identify the need to move towards sustainable development. The SPED

comments on the importance of open spaces when increasing densities and states that the increase in densities has "had a number of negative effects manifested to different degrees in certain localities with impacts on the quality of streetscapes and public open spaces…increased traffic flows and on residential amenity and the general upkeep of the environment".[11] Additionally, the low provision of urban green spaces does not encourage healthy lifestyles. Factors such as congestion, pedestrian safety, air and noise pollution, have reduced the amenity and quality of life. This has led to the gradual erosion of the degree of social integration within communities. [11]

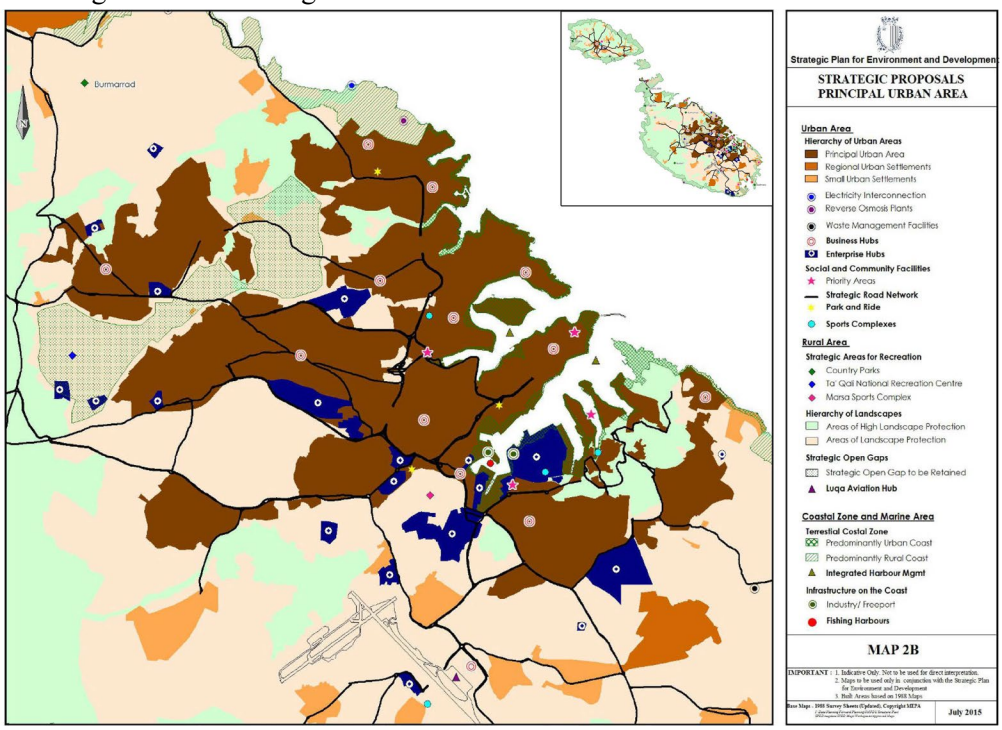

Figure 1: Malta's principal urban area as outlined in the SPED [11]

A review of existing policy (spatial planning and others) and other publications, identified the poor quality of open spaces in Malta [10 11 12 13] in relation to the sustainability agenda. This led to the research problem suggesting that: a 'gap' exists in relation to the planning and design of urban open spaces. As a result, the research aimed to investigate the planning and design of urban open spaces in Malta and use the outcomes to develop proposals for improving their contribution to sustainable development. The specific objectives were to:

- understand existing urban open space policies and identify gaps
- identify design principles/themes relevant and specific to the design of urban open spaces in Malta and their potential to contribute to sustainable development
- develop proposals for an urban open space policy / planning framework in Malta including understanding the process for its development
- identify barriers/implications for its implementation

Methodology Overview

A mixed method approach using Malta's urban conurbation as a case study is adopted.[14] The methodology is developed in two phases. The first phase gathers a substantial amount of data with the aim of developing proposals. Depending on the objectives, different data collection techniques are used. These are outlined in Figure 2. The five data collection techniques used for phase one are:

physical surveys of existing open spaces; in depth qualitative review of three case study open space projects; interviews with local councils; an online survey with users; and a review of existing strategies and policies. The second phase develops proposals in response to the first set of results and explores potential barriers to implementation using focus groups.

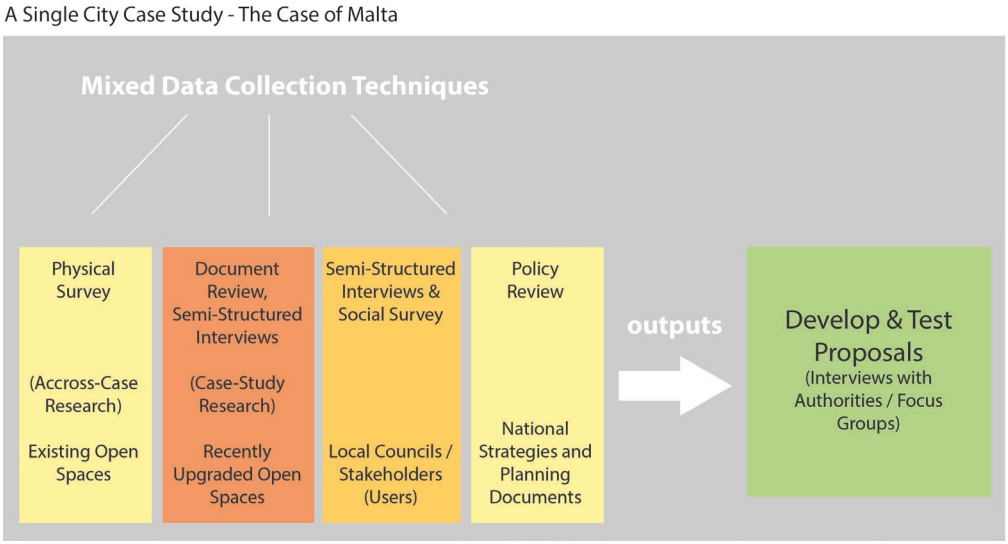

Figure 2: The methodology adopting a two phased ´mixed method´ approach

Theoretical Underpinning

This research deals with the operationalization of ´Sustainability´ in the context of designing and planning urban open spaces. The framework adopted is based on, the Brundtland report´s[15] three dimensions of sustainable development that should be considered in an integrated way: society, environment and economy. There are various discussions defining how urban open spaces should be designed. [16] [17] [18] [19] [20] [21] Some of these focus in particular on the design of urban open space in relation to achieving sustainable development. [22] [23] [24] Through such literature, a number of design principles were identified through which urban open spaces can add social, environmental and economic value and hence contribute towards sustainable development. They have been grouped into twelve main categories as listed in Figure 3 and this framework informed the data gathering for phase one.

The results revealed that urban open spaces in Malta are lacking in their potential contribution to sustainable development. Moreover, the evidence base identified the design principles which should be targeted in the Maltese context. [25]

Design Categories	Sub-categories
Spatial & Structuring Qualities	open space as structuring element, connectivity
Contextual Relationships	physical, functional, socio-cultural
Character & Form	typology, visual interest, spatial proportion & enclosure, responding to site & identity
Activities & Functionality	recreational facilities & functionality, user preferences, diversity, multi-functionality & flexibility, supplementary equipment
Accessibility	vicinity & availability, legibility, movement
Climatic Response	responding to seasonality, micro-climatic comfort
Water Management & Use	surface water drainage, ground coverage & storage areas, use of water
Use of Vegetation	presence, location, form & type
Lighting	energy efficiency
Resources Management	locally sourced & recyclability, durability
Maintenance & Management	operations, roles & responsibilities
Community Involvement	voluntary schemes, participation during the design & planning process

Figure 3: Design categories as extracted through the literature review

PLANNING AND GOVERNANCE: CHALLENGES AND PROPOSALS

In exploring the potential of urban open spaces to tackle urban challenges and contribute to sustainable development the green surge project has proposed the urban green infrastructure planning approach. This is a "strategic planning approach that aims to develop networks of green and blue spaces in urban areas, designed and managed to deliver a wide range of ecosystem services and other benefits at all spatial scales."[9] A review of such green infrastructure literature [26 27 28 29 30 31] provided a framework for consolidating the results. As a result, the need to explore the potential for Malta's urban open spaces to act as green infrastructure was identified.[14] In adopting such an approach, the planning process and governance context is also crucial. The underlying principles need to be understood as part of a holistic approach adapted to suit the local context, meaning the planning system, social, economic and environmental conditions, as well as the available actors.[9]

When analyzing the case study and local council interview data, an open more inductive approach was maintained, such that any additional issues not directly related to the design principles, but also the process, may be identified. It emerged that the planning process and urban open space policy together with governance aspects are also contributing to the existing state of urban open spaces. These results are an important contribution in informing the adoption of a green infrastructure approach.

What are some of the Planning and Governance Challenges Identified?

When adopting a green infrastructure approach the literature advocates the need for strategic, integrated and proactive planning across multiple scale.[9 27 29 30] Additionally, stakeholder, interdisciplinary and inter-sectorial co-operation is crucial.[9 27 30] Finally, as is the case with other

infrastructure systems, the organizational systems, structures and operational aspects need to be in place. The role and function of the entities which regulate, build, operate and maintain green infrastructure must be defined. [30] Keeping this in mind, the planning and governance challenges identified, as illustrated in Figure 4, meant that further research was required in relation to the planning and governance of green infrastructure to try and identify what mechanisms could be used / would be more suitable to move towards a green infrastructure approach for Malta's urban open spaces.

Figure 4: Some of the key planning and governance challenges

Developing Potential Proposals

Extensive best practice literature was consulted focusing on the areas which required attention in the Maltese context. This informed the development of a set of proposals related to planning and governance aspects. The aim was to develop a policy framework for urban open spaces in Malta with a view to their potential to act as green infrastructure, but also to understand the process for its development. These initial proposals are illustrated in Figure 5 and Figure 6.

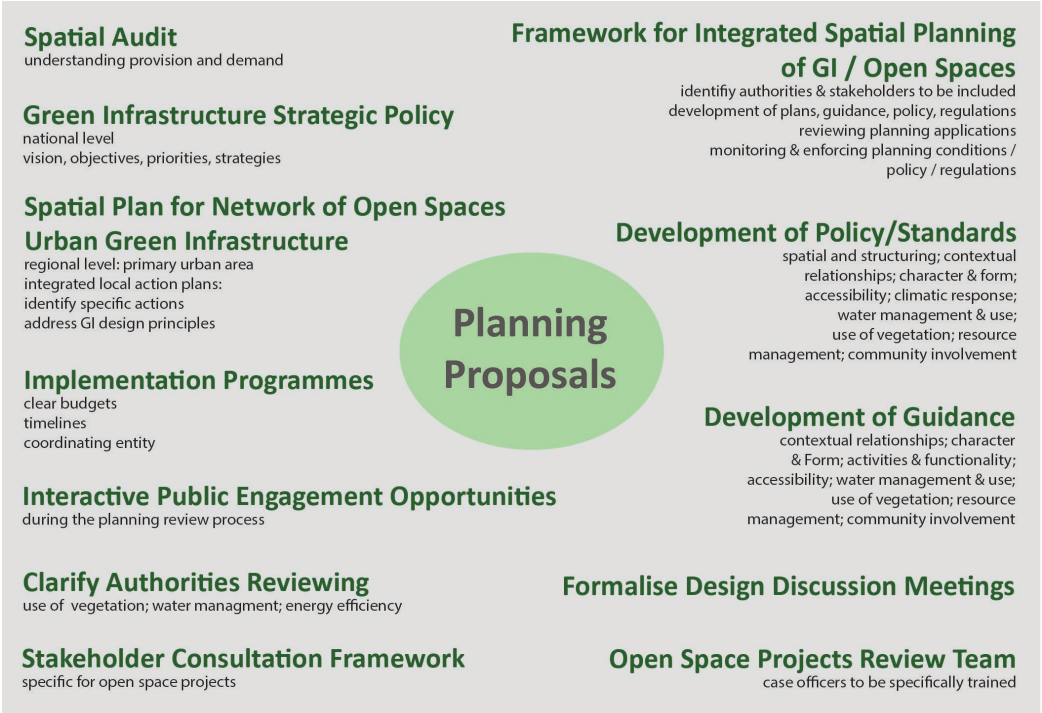

Figure 5: Planning proposals

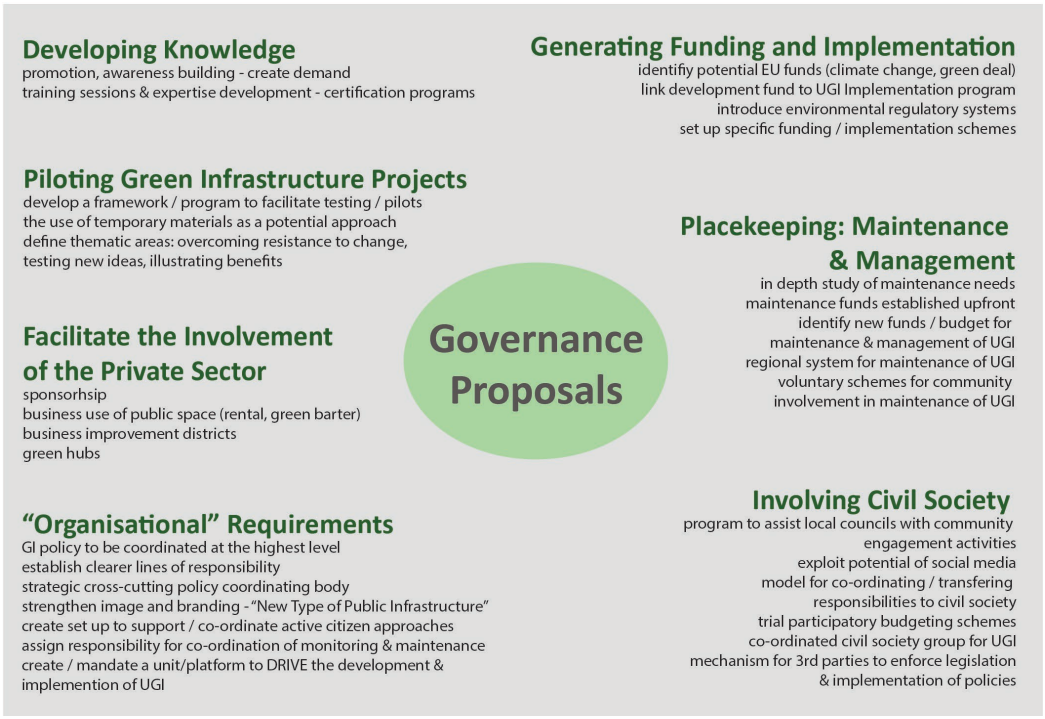

Figure 6: Governance proposals

DISCUSSION: EMERGING CONSIDERATIONS AND IMPLICATIONS

Developing such a policy framework is however not simply about applying international best practice. A context specific approach needs to be developed.[9] While the proposals already respond to the context as they have been developed in reaction to the results from the first set of data analysis, further

refinement was deemed necessary. The proposals were therefore subjected to focus group discussions made up of participants from authorities, non-governmental organisations and academia. The specific aim here was to identify barriers and implications to implementing the proposals and use this to further refine the framework. While the refinement of the proposals is still ongoing, this paper discusses some of the key considerations and implications which emerged through the focus group discussions. These are summarised below. Parallels can be noted with emerging literature[9 26 27 30 31] and reinforces some of the approaches being advocated. Others suggest that adopting best practice from other countries/cities would not be that straightforward.

A New Type of Public Infrastructure: Image, Branding and Creating Social Demand

Such an approach should emphasize that this is a new type of public infrastructure where the benefits are not just environmental but also social and economic. In this sense the image, branding and awareness building of the importance of this type of infrastructure is crucial. It needs to be recognized as such and there is the need to create social demand for it. There needs to be constant communication. Additionally, its multifunctional nature requires a new approach where interdisciplinary, integrated and collaborative and collective working is adopted.

A Strategic Integrated Planning Approach

The approach needs to be part of a wider long-term strategy which is committed to at cabinet (central government) level. Recognizing that this is a new type of multi-functional infrastructure, made up of different components, means, that this concerns multiple ministries. There needs to be coordination between ministries, authorities and departments. Policy making from various sectors and at various levels needs to tie in and contribute so as to move away from a silo thinking sectorial approach. Green infrastructure needs to form an integral part of the planning system, meaning that the inclusion of green infrastructure and its maintenance would also form part of the permitting process.

A Regional Approach

While bottom-up initiatives are important for green infrastructure initiatives, the planning and governance of particular aspects also require a regional approach. This emerged clearly during the first phase of data gathering but also through the focus group discussions. Malta's particular scale means that locality sizes are quite small, and the local council set up lack resources and expertise. The importance of connectivity means that the planning of such infrastructure needs to happen regionally and the role of various spaces as part of a wider network / system needs to be determined. It could also be more efficient to coordinate certain aspects such as the provision of expertise; monitoring and maintenance (to some extent); or funding and implementation programs at a more regional level while still retaining strong local input and facilitating bottom-up initiatives.

An Implementation Driven Approach

There is the need to develop mechanisms which ensure the implementation of plans and policies. While spatial planning systems play an important role, this needs to translate into enforceable legislation and mandatory requirements and standards thus adopting an implementation driven approach. Visions, strategic objectives, guidelines and 'goodwill' are simply not sufficient in a context where popular demand and a cultural lethargy for activism are lacking.

Emphasis the Health Benefits

The availability of green infrastructure or even simply green open space is not common in Malta's urban conurbation. Socio-cultural tendencies have resulted in limited contact and appreciation for

nature and more often than not, the prioritization of other open space uses, such as development or the provision of vehicular movement and car parking. The presence of vegetation in urban areas is sometimes also seen as a nuisance (requires maintenance, creates dirt). Overcoming such tendencies requires a targeted approach. Focusing on the health benefits and the value for enhancing society's wellbeing and quality of life emerged as a potential strategy in this regard.

Capacity Building Strategy

The challenges and proposals identified the need for knowledge building in the form of training or building expertise through certification programs**.** Capacity building however moves beyond this. A strategy is required to target and build capacity within institutions with respect to having the human resources across the disciplines and different expertise and with the right skill sets to deliver. From planning to operational aspects, from central government to local bodies to the professional community, this needs to be addressed.

Ensuring Transparency and Building Trust

Traditionally, in the Maltese context, public engagement as part of the planning or design process has not been forthcoming. Potential apathy towards what happens in the public realm and prioritizing the public good was identified. There is therefore the need to foster a culture of trust. Youth groups could be particularly targeted as a strategy. In tandem, introducing transparency in the processes to be adopted is crucial. Which spaces are public? Is the public actively engaged? How will the state, private sector and civil society work together? Who gets what and where? Additionally, clear standards need to be set which are known and available for all.

Creating a Sense of Ownership

This ties in with the need to create social demand due to traditional socio-cultural tendencies. However, it goes beyond. It addresses the need to create a sense of love for such places, a sense of ownership amongst the community. Considering the provision of limited property rights could help address this. This sense of ownership is also important amongst the authorities. Fostering a common vision where project objectives are developed horizontally in parallel rather than top down and then sideways is crucial.

Monitoring and Enforcement

The need for maintenance to form an integral part of project planning and design emerged strongly. Moving beyond this however, was also the need for it to be part of any permitting or funding program. In order for this to be successful, constant motoring is crucial, not only in relation to maintenance, but also with respect to learning and re-informing planning and design decisions. Here the need of enforcement and control, in terms of legislation and policy implementation is crucial. What emerged strongly is not simply the existence of regulation but the importance of implementing and enforcing it. Close monitoring in relation to the management and control of such spaces is therefore crucial.

The Role of Political Commitment

While the research has shown that the political interest in the concept of green infrastructure seems to be increasing, the need for strong political will is crucial in adopting such an approach. The various focus groups revealed that discussions and research initiatives have been taking place over the last few years, between authorities and various stakeholders. However, decisions still have to be taken to move forward. The need for real political commitment to do this was considered essential as one of the drivers for change.

A Clear Mandate

Finally, in relation to the previous point, a clear mandate needs to be given. Due to the multi-functional nature, the mandate has to be given for the leadership and co-ordination of such an approach. This mandate also needs to include the identification of the collaborating actors and definition of the different remits, accountability and authority to take decisions. This is crucial for creating ownership. Recognizing, the multi-functional nature is an extremely important consideration in assigning a coordinating role so as to avoid adopting a sectorial approach. The mandate needs to be given both at a regulatory, policy and planning level as well as for the implementation, operational and maintenance side of things.

CONCLUSION

In conclusion, this research contributes to understanding the enablers and constraints relating to the planning, implementation, and management of green infrastructure. Insights relating to the Maltese conurbation allow for comparison with other contexts.

It is clear that a strategic, integrated and proactive planning approach is required as advocated in the literature.[9 26] This also needs to address multiple scales.[9 27 30] However, these particular scales need to be determined in relation to the context in question. While initiatives at the locality (local councils) level and bottom-up grass root initiatives are important, in Malta's case the scale of the conurbation is considered an important one for coordinating initiatives and promoting strategic integrated planning. This is essential in moving towards the concept of a system or network of green infrastructure and promoting multi-functionality. In this sense, one needs to address the "city" and "regional" scale almost interchangeably while establishing strong relationships with the national scale. This then needs to be translated to the "localities" which compares to the "district" or "neighbourhood" scale.

Finally, the socio-cultural context emerges as an extremely important consideration. Much of the governance models advocate the use of grassroots initiatives and transferring of responsibilities to civil society.[31] While, grass-root initiatives for green infrastructure do exist in Malta, there is still the need to generate a kind of "popular demand" where the majority of civil society really wants such open spaces. While it could be said that society does want such space, it is questionable whether it would prioritise this. Such socio-cultural trends also effect the real political commitment to prioritise urban open spaces for green infrastructure over other requirements such as car parking or development. A multi-faceted approach needs to be adopted, to overcome such challenges and create the necessary organisational structures and resources. This is essential if Malta is to move towards a planning and governance model which promotes transparency and trust and successfully integrates active citizen approaches.

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QUALITATIVE ANALYSIS OF ADEQUATE DUE DILIGENCE PROCEDURES AS IMPERATIVE FOR EFFECTIVE PRIVATISATION OF ELECTRICITY SERVICE DELIVERY IN NIGERIA

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INTRODUCTION

This paper investigated the claim that privatisation planning process of electricity service in Nigeria was being hurriedly carried out with misplacement of priority[1]. The paper stressed that it should have been given the adequate due diligence procedure the enterprise deserved in the privatisation planning process. This would form an enabling fundamental background for better performance of electricity service delivery privatisation and after all, ensuring effective electricity service delivery desired.

The process of unbundling the Power Holding Company of Nigeria (PHCN) concluded in the year 2013 which marked the turning point in the history of electricity service delivery in Nigeria. However, the initial grossly underfunding condition of the power sector for over 20 years period had left the nation in continuous experience of the huge gap in infrastructure provision and subsequent poor facility distribution network. Hence, handing over of the companies (PHCN) to private investors is not intended to automatically transform to the stable power supply. More so that factors that needed to be considered in the privatisation process were neglected. In support of the above and citing[2] who was Nigeria (Vice President) and the Chairman of the National Council on Privatisation (NCP), submitted that privatisation was not an end in itself, but need improving efficiency strategy and service delivery, hence, continuous government commitment is needed to ensure the realisation of the privatisation objectives. This was consistent with[3] in his paper and also in the submission of[4], that, privatisation is not just a direct solution for the public sector enterprises problems of poor performance. This paper asserts in its gap analysis that there were non-consideration of certain factors that are germane to better performance of electricity service delivery privatisation. This lack of initial preparation in the privatisation policy had been the lapses the literature failed to address in all their reactionary submissions.

This non-precautionary approach in the Nigerian system of privatisation policy was noted from the non-performance condition of the earlier public enterprises that were privatised. Similarly, the Power Holding Company of Nigeria (PHCN), became worsened in performance after privatisation[5] [6] and are still troubled with difficulties and inadequacy in quality service delivery[7].

Problem Statement

The paper stresses; non-consideration for the factors of proper due diligence procedure of electric facilities before privatisation and in the privatisation planning process. This paper stressed that before privatisation, the ability of the available electric facilities' carrying capacity, that is, the state of the functional conditions and distribution network of electric facilities such as; (transformers, electric poles, wires and cables) which would facilitate quality electricity service delivery within the residential neighbourhood, are not adequately put into consideration, hence the reaction to the privatisation poor outcomes by the following authors like[8,9,10,11,12,13,14].

Objective

To identify the types and magnitude of the electrical facilities relevant to the effective privatisation of electricity service delivery.

To investigate from the relevant stakeholders, why due diligence procedure of electric facilities was not adequately conducted in the privatisation planning process.

To recommend the imperativeness of proper due diligence procedure to privatisation electricity service delivery.

LITERATURE REVIEW AND CONCEPT DUE DILIGENCE

The principles of the concept of due diligence procedure become pertinent to the fundamental issues of the electricity service delivery privatisation planning process. The conceptual issue of due diligence found its contextual explanation consistent with verses 28-30, chapter 14 of Luke in[15]. Also averred by[16], privatisation must be tailored to the peculiarities of the country and the specific condition of the enterprise. It could be pointed out that, if due diligence is carried out correctly; privatisations can bring about significant benefits for businesses, consumers, the State, and the economy in general. Challenges and concerns must be clearly defined and dealt with at an early stage through appropriate measures.

Experience shows that success is largely dependent on the level and depth of the preparatory work carried out ahead of any privatisation. An important lesson from international experience is that careful and detailed planning and preparation are crucial, to avoid common pitfalls and maximise benefits for the companies involved, their employees, the consumers and the economy as a whole[17].

The term 'due diligence' was conceptually drawn from the United States' Securities Act of 1933 USA. It applies when there was inadequate disclosure of spatial data to prospective investors in respect of a business deal just as the case of privatisation of electricity service delivery in Nigeria.

The Oxford English Dictionary gave the meaning of due diligence as; 'reasonable steps that were taken by a person to avoid committing a tort or offence or a comprehensive appraisal of a business undertaken by a prospective buyer, especially to establish its assets and liabilities and evaluate its commercial potential'[18]. Due diligence is an in-depth inventory of accumulating all spatial data related to all the material available to ascertain the investment potentiality. As such, due diligence is a precautionary approach to a business transaction or an agreement with another party[19]. In the context of this research due diligence is viewed as an adequate inventory of the electricity service delivery components that is the available electric facilities, service provider and quality and proper investigation of the intended investors to potentially cope with the task of delivering effective electricity service.

The process of due diligence makes it possible for investors to carry out a better job of determining the right worth of a particular asset. To determine the value of the venture, there are certain factors about the business under consideration that the investors need a thorough investigation to ascertain the

peculiarity of the enterprise to avert an unattainable venture. It is the outcomes of due diligence analysis that guarantees the purchase of an asset as it a present unnecessary danger to both parties[20]. The next session discussed the types of services and the aspect of electricity service delivery components that are relevant to this research.

METHODOLOGY

The research instrument of the interview schedule was conducted on purposively selected stakeholders from the government agencies and members of the management staff of BEDC, electricity service provider. Investigating how due diligence procedure was conducted at the inception of the privatisation planning process and availability of adequate spatial data of electric facilities and their consequent influence on the quality of electricity service delivery.

Hence, stakeholders sampling according to[21] were carried out. Nine participants were in total interviewed from the three government agencies selected. The government agencies selected were Federal Ministry of Power, Nigerian Electricity Regulatory Commission (NERC) and Bureau of Public Enterprise (BPE). Similarly, nine of the management staff of the BEDC was purposively selected. The purposive selections were in line with[22 23] and consonance with[24].

Conducting an interview survey facilitates in-depth responses about the people's opinion, view, thought, and feelings about the privatisation planning process. It is used to identify the particular and unique experiences[25]. The information is directly elicited from those that are intimately concern or in charge of the issue at stake[26,27], that is, the relevant agencies concern with the privatisation of the electricity sector. It is possible to delve more deeply into those individuals hoping to generate a subjective understanding of how privatisation planning process was conducted, and people's perception of the issue to get first-hand information from the few participants through an in-depth interview[28] thereby supporting the quantitative data outcome to confirm the literature.

Given the issue of the privatisation planning process being considered in this research, the respondents were made up of the Directors and the senior officers from the relevant ministry and agencies. The stakeholders' respondents are drawn from the; Ministry of Power, Nigerian Electricity Regulatory Commission (NERC), Bureau of Public Enterprise (BPE) and BEDC management staff. These respondents granted in-depth interview was considered appropriate in the context of the research focus and based on the stakeholder's participation and activities in the privatisation planning process of privatisation of electricity service delivery[29]. Hence, the respondents were appropriate to explore deeply into eliciting their views, opinions and subjective understanding of the consideration for due diligence and availability of electricity facilities spatial data in the privatisation process of electricity service delivery privatisation[30].

Interview schedule and the stakeholders

The transcribing of the answers from the interview was done to identify the thematic trend and the possibility of sub-themes about the views of the government agencies and BEDC management staff. In this regard, data analysis was treated based on the main identified themes which are due diligence procedure, and availability of adequate spatial data. The coding followed the guides from[31], as explained in the methodology. The variables were manually coded based on certain issues which clustered around the theme.

Thematic content analysis of inductive approaches to analysing qualitative data as explained by[32, 33] and[34] was adopted in the response of the participants to arrive at the results of the interview in this paper. The process of the analysis started with transcribing the interview transcript following[35] as guides in this paper.

The actual process of selecting the government agencies and BEDC management staff and the focused issues in this paper was in line with the studies of[36, 37]. To assign value and relevance to the participants' response, their answers were represented in alpha-numeric applying quantitative method[38]. In producing the qualitative data, the paper took guidance from[39] who offers a brief description of content analysis, as a quantitative method of analysing written words, that the results can be produced in numbers and percentages.

Hence, the paper conducted a content analysis and produces the result in an alpha-numeric statement[40, 41]. This paper determined the percentage of the participants' responses, using commonly coded quantitative variables. Thus, in this study, the responses were staged into three categories as follows; those that agreed to the existence of electricity problem and response positively to other interview questions were ascribed (YES - 3), those in the negative response to the interview questions were ascribed (NO – 2), and those in neutral position was ascribed (NA - 1).

RESULTS AND DISCUSSIONS

Introduction

The results of the qualitative analysis of the data collected were presented and discussed here. The paper objectives and the parameters considered formed the basis for interpretation and discussion of the analysis. In this section, the qualitative analysis based on the in-depth interviews with the directors, senior officers of the government agencies and the management staff of the BEDC. It consists of an analysis of certain fundamental issues that should be considered in the electricity privatisation planning process. These issues are electricity facility problem, due diligence problem, physical planning problem, technical/financial problem, population and a spatial data problem. A total of 18 participants were interviewed from both the government stakeholders and the electricity distribution company (BEDC) in this paper. The responses gathered from the interview conducted with the stakeholders were presented in the following Tables 1 to Tables 5.

Factor	Stakeholders	
	Government % Yes	BEDC % Yes
Electricity Facilities Problem	100%	100%

Table 1: Electricity facilities problem
Source: Olamide 2017

The above result showed that both the government agencies and the BEDC agreed that there is a problem with the electricity service delivery in Nigeria. The problem according to the government stakeholders ranges from:

(i) "Facilities break down due to an increase in consumption and
(ii) "Deteriorating, ageing of available facilities".
(iii) Longtime disinvestment in electric facilities

While from the BEDC it was blamed on:

(i) "Non-payment of the bill by customers"
(ii) "Illegal connections by customers"
(iii) "Non – profitability"

Factor	Stakeholders	
	Government % Yes	BEDC % Yes
Due Diligence Problem	100	74

Table 2: Due diligence problem
Source: Olamide 2017

The government stakeholders' responses showed that; "Those sensitive issues that deserve adequate consideration via adequate due diligence procedure were not considered", like:

(i) "Functional condition of electricity facilities and distribution network not adequately audited"

(ii) Consumers views and needs not adequately accounted

The consumers' experience and perception of the electricity service delivery were not considered before privatisation and in its privatisation planning process[42]. They summarily concluded that *due diligence procedure was not properly conducted and the negligence in carrying out proper due diligence procedure on the essential details of the components of electricity service delivery was the fundamental root cause of non-performance of the electricity service delivery after the privatisation".*

This was consistent with the[43] in his report that*; "Due diligence was conducted at the data room of the BPE instead of a full physical and financial audit of the Government firm creating room for manipulations and distortions".*

Table 3 is the response of the stakeholders to the issue of the technical and financial problem of the distribution companies.

Factor	Stakeholders	
	Government % Yes	BEDC % Yes
Technical and Financial Problem	77.7	77.7

Table 3: Technical and financial problem
Source: Olamide 2017

Both the government officials and the BEDC management staff all agreed that the distribution company was both technically and financially unfit as they claim to be for effective electricity service delivery. As quoted from one of the Deputy Directors on the part of the government interviewed, he said the outcome of the DISCOS operations was now a shocking experience, quoted in his response that, *"Those companies finally selected as preferred bidders presented their profile as highly technically and financially able for the job during the bidding process. He said from their operations and activities now, it showed that they were far below the expectation of what they initially claimed to have at the inception of the investors' screening".* The foregoing was supported by the response of the BEDC management staff interviewed that, *"There was no way the BEDC can face the financial need of the electricity service delivery without the assistance of the government financially"*. This implied that the company was not financially adequately prepared for the task of electricity service delivery. This is consistent with[44] that, the careless conduct of due diligence of the companies within the confinement of the BPE data room instead of comprehensive financial and physical audit resulted in the problem of:

"Lack of capacity of the acquiring private firm, lack of technical knowledge or experience of the particular industry by the acquiring firm, the inability of bidding firms to meet financial benchmarks".

Table 4 presented the interview results on population and spatial-data problem affecting electricity service delivery.

Factor	Stakeholders	
	Government % Yes	BEDC % Yes
Population and Spatial-data Problem	100	69.4

Table 4: Population and spatial-data problem
Source: Olamide 2017

Above responses in Table 4 showed some problems associated with non-consideration for the user's population statistics and spatial data of electric facilities as related to individual electricity users. The implications of this from the interview were firstly, impossibility to see the actual situation of electricity service delivery as it is on the ground. Secondly, it will also be impossible to relate each of the electric facilities functional condition to the actual users. Thirdly, effective control, proper management and adequate maintenance of electric facilities will be difficult in the absence of spatial data that detailed out the relevant information about the electric facilities distribution network. Fourthly, without spatial data, there will be the inability to holistically embark on the process of infallible decision-making for the future. Finally, in this regard, the spatial information about the population statistic of the users would not be made available.

Factor	Stakeholders	
	Government % Yes	BEDC % Yes
Physical Planning Problem	100	66.7

Table 5: Physical planning problem
Source: Olamide 2017

The response of one of the participants interviewed showed that; *"The distributions of electric facilities were not positioned with the actual need of the consumers"*. This implies that the electric facilities are not equal to the actual demand of the consumers. Both the respondents from the government stakeholders and the BEDC responded that; *"This had been the reason behind overstretching and malfunctioning of electric facilities, the transformer, electric poles, wires and cables"*.

FINDINGS

Meanwhile, the five factors considered in this paper were sub-grouped into two groups. Firstly, the factors of electricity facility problems, due diligence problems, technical and financial problems were grouped under a due diligence procedure. Secondly, the issues of population and spatial data problems and physical planning problems were grouped under adequate spatial data. Hence, the due diligence procedure and adequate spatial data were the focuses of the privatisation planning process in this paper. Table 4.1 summarised the final results of the participants' answer to the interview conducted with them. The response of the government stakeholders to the absence of proper due diligence procedure is 93.3% while 91.3% of BEDC management staff, responded to the absence of proper due diligence procedure in the privatisation planning process. Similarly, the response of the government stakeholders to inadequate spatial data in the privatisation planning process is 100% while 68.1% on the side of BEDC management staff indicated that there was inadequate spatial data in the course of the privatisation planning process.

The conclusions drawn from the above analysis were that both the stakeholders interviewed agree to the problems. That the factors of proper due diligence were not been considered before privatisation planning process. This resulted in the poor performance of electricity service delivery in Nigeria and

the study area. Similarly, the participants also agreed to non-consideration of adequate factors of spatial data of the electric facilities in the privatisation planning process of electricity service delivery as the root cause of electric facilities breakdown, ineffective electricity service delivery and eventually the poor performance of electricity service delivery privatisation.

These conclusions were viewed from the government stakeholders who were very straightforward and direct in their response to the interview on the issue on ground. They were government senior officers in the selected agencies and were privy to all that transpired during the privatisation exercise. Also, the non-performing electricity service delivery is another glaring fact, that their response cannot deny it. Although, the BEDC, being the company in charge, they were very subjective in the response to the interview questions. Nevertheless, some of the management officers responded that the normal process of privatisation exercise was not followed. Most of the answers to the interview were got from their personal views. Similarly, clear evidence of the poor performance of the electricity distribution company was undeniable. This influences the factual responses of some of them that, the privatisation planning process was improper after all. Table 6 showed a summary of the interview conducted with stakeholders.

Privatisation planning process without:-	Responses to interview from Government agencies		Responses to interview from BEDC	
	Yes %	No %	Yes %	No %
(1) Proper Due diligence procedure	93.3	6.7	91.3	8.7
(2) Adequate spatial data	100	Nil	68.1	31.9

Table 6: The final result of the interview concluded with stakeholders
Source: Olamide 2017

CONCLUSION

The factors considered in this paper were the functional condition of electric facilities; this was viewed under the concept of due diligence procedure. The reason why was revealed by the findings.

The findings from the interview conducted on the relevant stakeholders in the privatisation of electricity sector revealed that 93.3% of the directors, senior officers of the agencies and 91.3% of the BEDC management staff interviewed revealed non-consideration of proper due diligence procedure in the privatisation planning process. Again, the from the stakeholders revealed that adequate due diligence procedure was not properly conducted on the factors of electricity service delivery components. The implementation of the policy was done in a hurry and was not transparent. Thus, the electricity problem was due to the non-consideration of the factors of the functional condition of the facilitating facilities like a transformer, electric poles, wire and cable, electricity service provider and service quality. The facilities were incapable of supporting effective electricity delivery; hence, the paper concluded that if the factors of due diligence procedure were considered, it would have paved way for the better performance of electricity service delivery.

Similarly, the results of the interview on the stakeholders further revealed, 100% of the directors, senior officers of the agencies and 68.1% of the BEDC management staff interviewed responded to the absence of adequate detail spatial data on the electric facilities. As some of the BEDC management staff said that they were not aware of the magnitude of the electric facilities deterioration is as much as this. This absence of detail spatial data about the electric facilities' distribution network and functional condition were the reason why there is the unreliable and poor quality of electricity service delivery as revealed by the experience of the household heads in their neighbourhoods. The paper hence identified the need and importance of all-inclusive, all-encompassing and comprehensive privatisation planning process that take into consideration all the factors of due diligence and spatial data identified in Table

2 in this paper. In the context of this paper, these factors are practically statistically significant and fundamental to the better performance of electricity service delivery.

Recommendation

The paper recommended that in the privatisation of electricity service delivery, adequate due diligence procedure is fully needed. All the tenets of proper due diligence should be employed for a full investigation of the existing electricity service delivery physical facilities. A full inventory of major electric facilities in the entire coverage of each distribution company must be carried out. The existing electric facilities in a residential neighbourhood, the proposed layout under the coverage of the DISCOs quantum of electricity consumption must be conducted by the prospective investors' team. This is the stage where the spatial data that showed the entire electric facilities distribution network within the neighbourhood is needed. At this stage, those electric facilities that are functional should be identified out of the faulty ones to know the magnitude of the task ahead. The household consumers that are served electricity should be detailed out with their biometric information grouped alongside with the facilities that are serving them. Here the residential layout plan is needed to easily identify those that are users of electric facilities. The investigation into the population statistics to have on record the actual statistics of users and the experience of the electricity service delivery of the consumers should be conducted.

On the other hand, the financial capacity and technical capability of the prospective investor should be conducted to know their level of preparedness for the challenge of delivering effective electricity service. All these should be carried out by the relevant privatisation planning teams.

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GIANT DOLLS' HOUSE PROJECT: TWO INSTALLATIONS

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INTRODUCTION

This paper looks at two Giant Dolls' House installations that were held in 2019. One in the Museum of Goa, in April, and one in the Museum of Childhood, London, in June, in collaboration with the charity Oxfam and part of refugee week and the London Festival of Architecture (LFA). The first installation was an attempt to interact with some of the visitors and residents of Goa about pollution and waste, the second tries to raise awareness and empathy for the situation many displaced people find themselves in. In both installations the people who participated were those who often do not have a voice in official debates. This paper evaluates the two projects.

THE GIANT DOLLS' HOUSE PROJECT

The Giant Dolls' House Project is an ongoing social arts project that engages local communities.[1] Each participant in the project makes an individual dolls' house room in an empty shoebox, any way they want to. The finished boxes are attached onto a large black canvas and connected with ropes, ramps, and ladders to create a community. The installation is loosely inspired by architectural housing structures such as Constant Nieuwenhuys' new Babylon, the Metabolists, and Team 10s notion of the Kasbah.[2] Whereas these projects started with an overall system each Giant Dolls' House Project Installation starts with the individual dolls' houses made by the various participants.

Miniature and Making

The Dolls' House can be used to explore ideas of identity, both shared through the way the boxes are linked as well as personal, through the individual dolls' house boxes and uses the idea of miniature and the dolls' house to convey ideas, dreams and memories of the participants.[3] Miniature enables dreaming and gives a powerful overview of a scene or setting which can be only consumed with the eyes, creating a hermetic world within its boundaries.[4] As the viewer is not part of the miniature tableau, she can project her dreams and wishes onto it. Making miniature objects requires a certain craft.[5] In the Giant Dolls' house all kinds of crafts are accepted, and the project encourages participants to think with their hands. Tips and tricks for making are provided, but turning bits of fabric, bottle tops, shells and any other discarded item into an object in the box, is encouraged and often informs the theme of the box and therefore the story the participant will tell.[6] Miniature and dolls' houses are often left in the realm of the imagination and play; however, these are more and more recognized as important elements in education for imagination and empathy.[7]

The Giant Dolls' house uses the element of making as well as the potential of miniature to tell (often personal) stories to seduce its viewers while raising awareness about homelessness, the refugee crisis, or a specific topic, depending on the installations and the participants.[8]

INSTALLATIONS[9]

The first installation took place in October 2014 and since then the project has travelled to Dubai, Goa, North Carolina, London, Sheffield and Jordan. During COVID19, we conducted a virtual dolls' house installation as part of Refugee week and LFA2020 in collaboration with Oxfam.[10]

Goa

The Museum of Goa is a contemporary art museum situated in Saligao. It was founded in 2015 by the Goan artist Subodh Kerkar.[11] The museum 'seeks to bring art and local history to larger audiences in an attempt to bridge the cultural gap in the country.'[12] Goa is one of the wealthier provinces in India, but it suffers from problems all too familiar to popular tourist resorts: the pressure on the environment; he delicate sea life, plastic soup, overdevelopment, pressure on resources, and inequal distribution of the wealth generated by the tourists.[13] The overdevelopment also results in the marginalization of the land of the existing population, especially the fishing community, as well as a great influx of, often poor, seasonal workers from other provinces in India who come and work in the hospitality industry and the fleeting presence of tourists who don't have a stake in the place other than personal enjoyment but have a large ecological footprint. We collaborated with Noreen van Holstein, from Gotcha Media, who had set up several waste recycle programs in the area and asked organizations to participate.

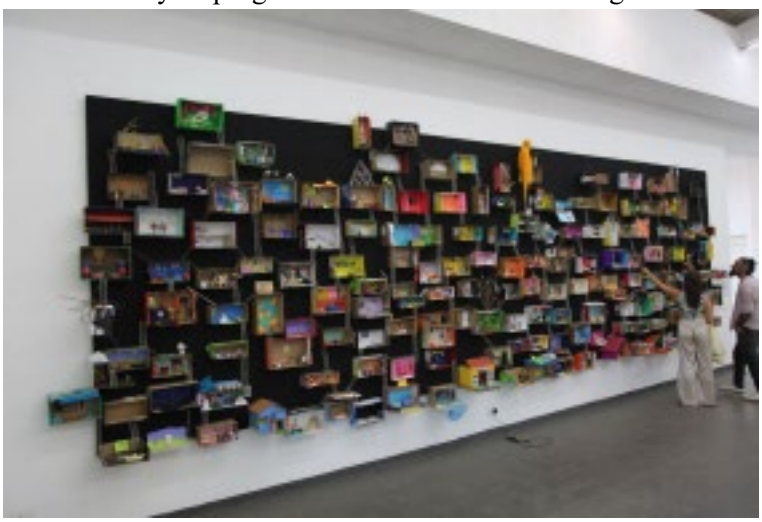

Figure 1. Installation in MOG

The installation was assembled onto a wall of nine by four meters for the installation and and a corner and smaller wall for information panels and pictures of the workshops and texts of the stories.

Participants: what does Goa mean to you?

Over a period of two months workshops were conducted by Louise ten Bosch from the Giant Dolls'house team. We asked participants: 'what does Goa mean to you.' So, participants could decide how to engage with the project. We worked through Urbz with *Cacara and Indiranagar Bookworm Library* with Children from fishermen and migrants. With Women@work, participants in workshops held through the museum, staff from the museum, local artists among who Sonny Singh, children from Green Meadows school, Ish Kripa Sadan women shelter and girls home, through the Samarpan

Foundation and students from the Goa College of Architecture Students with Apurva Deochar. The project was sponsored by planet Hollywood, Aayshana Lakhanpal, and the Museum of Goa.

The stories in the installation

The responses of the participants ranged from the popular perceptions of Goa such as the beaches, the fish and the coconut tree, to the negative effects of tourism and the neglected side of Goa to personal stories and the wish for a bedroom. An architecture student wrote the following:

Figure 2. Neglected Side of Goa, Goa University

'Our box shows the neglected sides of Goa. The high level of Tourism portrays a particular picture of Goa, one of beaches, alcohol and Christianity. We are trying here to show the other sides of Goa, for example, the Portuguese houses and the coconut tree. We have done this through placing all the neglected elements of Goa at the back of the box and the touristy ideas of Goa at the foreground.'

Some made the Goa as advertised in the bridal magazines where Goa is pictured as a place where one can 'let loose'.[14] Three students made a traditional Goan mud house.[15]

A woman from women@work wrote: 'My box depicts my dream home. In my dream home I would be sitting and resting on the chair the whole day whilst my son would finally be resting on the bed.' Two sixteen-year-old girls from the refuge, one a young mother, made a bedroom with a tv and Tom and Jerry on: their favorite program. Two children from Indiranagar made a tree with their favorite things: a sofa and a TV. The museum workshops produced boxes that depicted anything from personal experiences that led to coming to Goa, swimming and snorkeling in the sea, the effect of plastic in the environment, the disappearance of the traditional local theatres to the commodification of nature.

Figure 3. Goan Mud House, Goa University

Figure 4. Women@Work: 'Dream Home'

Figure 5. Indrigar, Bookworm
'Tree of Favorite things.'

Engagement

Participants and their families visited the project; money for transport and food was made available where necessary. The project was published widely in local papers and attracted a large audience.[16] Subodh Kerkar opened the exhibition and local practitioners who had been involved in sustainable building showed their work.[17] There was no follow-up project, which would have meant talking to stakeholders in Goa, getting involved in discussions about real projects that could have formulated ideas towards sustainable developments, or even realizing some of the dreams participants expressed in their boxes. The museum of Goa wrote the following about the project: '*The highlight for us about GDH was how we managed to penetrate into different layers of the society and convince them in making art.'*

Za'atari and museum of Childhood (with Oxfam)

In March 2019 we travelled to Za'atari in Jordan to make dolls' houses with its Syrian residents. In order to take part of LFA, refugee week and to work on Oxfam's 'stand as one campaign.'[18]

Figure 6. Za'atari Camp Photograph N Al Nsour

Za'atari, founded eight years ago is home to nearly 80,000 refugees who fled the conflict in Syria – and now almost one of the biggest de facto cities in Jordan. It's in the far north of Jordan, a few miles from the Syrian border and driving distance from Amman, the capital. The camp is run by aid workers who provide basic food, medical care, shelter, water and schooling. 24000 prefabricated home have replaced the original tents. The camp stretches over five square kilometers. The main road that cuts through the center of the camp has become an unofficial marketplace and has been dubbed the Champs Elysees.[19] The theme of LFA2019 was 'boundaries,' in Za'atari many of layers of boundaries exist for visitors from outside, for residents in relation to their host country, and between work and residence status and with Syria the country they had fled.

Participants: What do you want to tell the people in London?

We held four workshops in Za'atari. For respectively girls, boys, women and men. Participants were encouraged to work in small groups and use recycled materials (Oxfam set up a recycling plant in the camp). We told the participants that the boxes would be exhibited in London and asked: what do you want to tell the people in London with your dolls' house. The men were the last group to make dolls' houses and were initially less than impressed with the project and about to leave. They stayed after a local Oxfam 'cash for work' employee explained the project.

In England Oxfam partner schools, clients from the New Horizon Youth Centre, and others made boxes which were sent to the Museum of Childhood, where all were assembled into the installation.

The stories in the installation

The stories of the Za'atari residents varied.

Figure 7. Fashion Shop, Miriam Za'atari

'We made a fashion shop to present the clothes that we have designed. We wish to become international designers one day and to have our own fashion shop to show our designs." "We didn't use to recycle at home, but when I visited Oxfam's recycle center and knew more about the project and its benefits, I then went back home and told my mother to separate the waste. Now, my brother gives the separated waste to the recycling trolley worker every day.' Mariam, 12

Figure 8. Living Room, Salah, Qasim, Za'atari.

'We made a living room, that has a table, chairs, water tank, flowers, fan, and a battery/generator to make it move. We did it because we both want to have a room like this one day.' Salah 13, Qasim 13
The adults could be roughly divided into those who wanted to focus on their life in Za'atari:

Figure 9. Section of Camp, Za'atari Aisha

'Through this Dolls House I want to show women around the world we can be strong, no matter what happens. We need to be strong and fight. [..] "I'm fighting for my children to be great in the future, so they don't have to go through what I have. I'm so pleased that my children are doing really well in school and have come first in their class.' Aisha

Figure 10. Volleyball, Za'atari, Ahmad

'I created a volleyball yard, I don't want to create or talk about anything sad, let us be happy and create pleasant things. I play volleyball a lot with my friends and neighbors and we enjoy it all. With all the suffering we went through, we need to have some time to enjoy and make ourselves happy.' Ahmad, 22

Figure 11. Spring in Syria, Za'atari

And those who wanted to convey their love for Syria and made clear what they missed or what they'd been through. The box that resonated most with anyone who saw it had the following story: I designed a portrait of spring in Syria. I was always excited to see the flowers and greenery coming through and as a family we would go to the country for a picnic. This is a portrait of childhood and my old life'

Figure 12. Syria. Nesrine, Za'atari.

A few of the women wrote about their homes in Syria, the food, the way they sat and ate. 'I made this doll house because I miss Syria a lot. Now, I am here in Za'atari camp, but my mind is in Syria. I keep

thinking of it and my parents and my family who are there now. Inside the doll house, I added a fountain, flowers, mattress where my mother-in-law is sitting on it, and I make Kibbeh. I drew myself while fleeing from Syria, and inside the doll house I wrote: 'My family, my mother, my home Syria, we will come back.' Nesrine, 32

Children in the UK made a wide variety of boxes based upon Oxfam's work and the life of refugees. Robbie wrote: '…I chose to put in a toilet because most families in poor countries don't have a fully functioning toilet. [..] I chose to put in a bath so they can keep clean.' The bath, according to Nikki Monga, the director of Oxfam Jordan, would surprise the children of Za'atari: the water that is used to fill a bath is many times the daily allowance for the whole family.'[20]

Figure 13. Bedroom, Darcey. UK

Darcey wrote: My whole box motto is to 'not dream your life, live your dreams'. But refugees can't dream big dreams because they don't feel safe enough to. Every child should be able to dream what they want to do in life and then achieve it. I want to be able to be a marine biologist which is why I did my own box as an ocean. Every child worldwide should be able to sleep safely so they can dream. My two favorite parts of the box are the pile of National Geographic's on my bed and the posters on the wall.' The boxes varied from nuclear shelters in the future, to all kinds of wonderful rooms many carefully made with involvement of parents, to observations about peace and democracy by older children. Sometimes special elements also inspired the rooms. In one school two girls made Marshmallow lamps, which made their way into many of the living rooms made by the other children.

Figure 14. Installation in Za'atari. Photograph N. Al Nsoor.

Engagement

The first installation was in Za'atari on the Oxfam community compound where we held the workshops. The dolls' houses and black canvas were attached to the side of one of the buildings with magnets and linked with ropes and ramps and ladders in collaboration with the participants after which many of them shared their box and story with an audience. Food and drinks were served.

Figure 15. Museum of Childhood Installation.

The second installation was in the V&A museum of childhood, on a wall, painted yellow, of seven by three meters, with on the side print outs of the stories and photographs of the workshop and panels with text about the project. A booklet we composed with information about the camp was also on display. Visitors engaged with the exhibition on many levels: the texts, the dolls' houses themselves and the installation as a community. The evening around the installation consisted of a number of talks: Nikki Munga, head of Oxfam Jordan talked about Oxfam's work in Jordan and the crisis. At the end Josh Gaillemin from the Whole Story, brought the dolls' houses and their relations to live through

telling a story while engaging the audience. Oxfam used the pictures of the project on their social media and managed to engage new audiences.[21]

CONCLUSION

Both installations can be considered successful when looking at the reactions of participants, audiences and organizations we worked with.[22] In Goa the installation aligned with the museum's goals: to engage visitors with Goa as well as with contemporary art.[23] The installation became a celebration of Goa. Oxfam said they had attracted a new audience and had never received so many different and wide-ranging stories from residents from Za'atari.[24] However, it is unlikely that the installations have a lasting impact on the issues we raised.

Workshops were loosely structured, and participants were given time to make and chat at the same time which created an atmosphere of trust. It gave the team time to write down the stories of the children. In Za'atari the relative anonymity of the participants helped women participate who previously did not take part in activities such as newspaper interviews as they were shy and did not want their photographs taken.

Both installations show that all people are equally idiosyncratic, which exposes deeply unfair differences between people in a way that we hope creates empathy in. However, could the installation as a whole have more impact on policies on refugees (Za'atari), or more sustainable development (Goa)? Or would it be more important to try and create a more measurable benefit for the participants? themselves? For example, further engagement with their individual boxes could lead to improving small things in their immediate environment; could we have pushed for an extra volleyball court in the case of 22-year-old Ahmad in Za'atari, or push for better bedrooms for the girls in the refugee?[25]

The first, measurable political and policy consequence is an issue that warrants further research and is a challenge common to more collaborative arts projects.[26] The second, improving the lives of participants directly, could perhaps be designed into future installations.

However, perhaps it is the messiness and incompleteness that is also the strengths of the project. It can almost be defined by what cannot be measured, though manages to create noise about issues that need attention. As each installation is defined through its participants as well as a central question, small adjustments to the goals are constantly made. So perhaps next to the project's role as a conversation starter and fun activity it can also eventually be slotted into specific processes.[27]

NOTES

[1] See de Haas. 2018 in Cairns and Day, pp 169-178
[2] Van der Heuvel, Dirk; Risselada, Max. 2005.
[3] See also chapter 2 in Susan Steward, 2005
[4] Idem
[5] Sometimes admission to guilds required the artisan to make some of his ware in miniature or miniature furniture was taken by travellers salesmen to show their ware (See Himmelheber, 1979; Pijzel Dommisse, 2001, 2011 on the visit of the traveller Von Uffenbach to the Dolls' House of Petronella Oortman in 1712). [6] See Noakes 2001; de Haas 2014.
[7] See Rule 2005; Bruyns 2015, Sennet 2012
[8] The benefits of making for participants, or in an educational setting have been explored by Audrey Rules.
[9] See also de Haas, 2018 in Cairns and Day, pp 169-178
[10] See www.giantdollshouse.org.
[11] https://museumofgoa.com/
[12] https://museumofgoa.com/
[13] In conversations with Noreen van Holstein, Rahul Srivastava from Urbz,and local architects. Through observation.
[14] From the story transcripts, compiled by L.ten Bosch and N. van Holstein.
[15] They wrote: 'The mud houses used to be very simple, with their walls smokey from the indoor cooking stove in the corner. The house is fixed with Goan doors. Like in any traditional house there is also a hole in the building for light to come through. You can use your phone light to show the shadows. If you look closely you can see a Lady coming through the door. She is covered in paint as she has just celebrated Holi.'
[16] 'Miniaturising Objects.' The Goan, Thursday 18 April 2019 'A Unique Way of unfolding stories.' The Goan, Friday April 19; Machado NT Buzz, Christina, 'Sparking conversations with Dolls' houses' Times of India, Thursday April 18; Machado NT Buzz, Christina 'Depictions of Home' Times of India, Sunday April 21 [17] Hyacinth Pinto spoke about building with mud and rammed earth; Ricardo Pinto Rebello about how he made a concrete apartment building sustainable. and the photographer David da Souza, about building his own home with recycled and sustainable materials.
[18] https://www.oxfam.org.uk/get-involved/campaign-with-us/conflict-and-emergencies/stand-as-one [19] From the booklet produced to accompany the exhibition in the museum of childhood. Text: Sarah Cowan from Oxfam.
[20] Nikki Monga, on the opening evening in her lecture.
[21] Oxfam staff, in personal conversation.
[22] From personal conversations with audiences, organisers and workshop participants. We did not have any feedback forms.
[23] Sharadha Kerkar, in text submitted for a non-published booklet about the project.
[24] In conversations with staff.
[25] This also came up in a conversation with Donovan Gracias from Urbz.
[26] This is a problem known to more community arts projects: how to translate the project into policies and real change or action. This I have not researched in detail, though see for example, in peacebuilding: Premaratna, Bleiker, 2018; Lederach, 2007.
[27] This is similar perhaps to the messiness, yet flexibility Jane Jacobs describes in her comparison of Birmingham and Manchester in the Economy of Cities. Manchester was the start of the industrial revolution, factories and abject poverty: a city founded on a singular idea. Birmingham consisted of many small businesses that were all adaptable and evolved according to needs.

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DRAWING AS PROTEST: REINTERPRETATIONS OF URBAN SPACE IN BARCELONA THROUGH GRAPHIC NOVELS

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INTRODUCTION

The growth of the tourism industry has become a problem in metropolises all over the world. Venice, a city of 60.000 inhabitants, received 36 million international visitors in 2017[1]. In San Francisco's Mission District apartment prices are rising due to gentrification processes, which are displacing the neighborhood's long-term latino residents. The Mission's urban transformation seeks to accommodate technology workers and short-term visitors, i.e., tourists[2]. As a way of protest, residents are creating murals in buildings such as *Victorion*, by Sirron Norris. Located in the famous Balmy Alley, *Victorion* portrays a giant robot made out of Victorian houses trying to defend the neighborhood from property speculation. Unfortunately, the murals are now a tourist attraction that brings even more interest of real estate investment companies to the neighborhood. In Barcelona's Park Güell, residents took over the pavement to write graffiti that read "tourism kills the city". The slogan became popular and is currently written on buildings of every neighborhood in the metropolis.

This paper explores how long-term residents respond artistically to local governments and global financial powers investing in cities and converting them in leisure destinations. Since the new millennium metropolises all over the world have been converted into consumable products for the global economic system and the foreign visitor, clients that consume cities as fun commodities. In the following pages I analyze two graphic stories that comment on the recent urban modifications developed in Barcelona, a city that is a paradigmatic case of this trend. The short graphic story "Marc Mystery" published in 2011 in the graphic novel *Barcelona TM*, and the graphic novel *Barcelona. Vagabundos de la Chatarra*, published in 2015, are a form of protest that reacts to the local government focusing all of their economic, social, and cultural resources on the tourism industry. I argue that the authors defend that looking at the city like a product is no longer valid for long-term residents and low-income citizens like immigrants, who have been suffering the consequences of commodification and gentrification in their neighborhoods for far too long.

"Marc Mystery"

"Marc Mystery" is a short graphic story written by Corominas and Martín Pardo in the graphic novel *Barcelona TM*, which is a compilation of thirty-three stories about the city. Marc is the protagonist of this story, a muscular private eye who works in Barcelona. The private eye in "Marc Mystery" is reminiscent of the masculine, tough detectives of pulp magazines, very popular publications in

America from the 1920s to the 1950s. The cover of the short graphic story represents a pulp magazine. As can be seen in **Image 1**, in the middle-top of the first page of the comic it says that the magazine is in its July issue and it costs twenty-five cents. The presence of the detective's office, the act of smoking, and the hat are also elements of pulp imaginary. However, there is an important deviation in this cover from traditional pulp magazines: the attention is on a male body (the private eye is in the middle of the page, naked, smoking in front of the window) instead of a female body. As illustrated in **Image 2**, which shows the cover of *The Big Sleep* (1939) by acclaimed hard-boiled crime fiction author Raymond Chandler, pulp magazine covers usually included women to attract the men that consumed these magazines[3]. This focus on the male body is a signal of the authors' intention to parody the genre and utilizing it in a critical way.

Image 1. Cover of "Marc Mystery"

Image 2. Cover of The Big Sleep by Raymond Chandler

Marc's body is facing his office window, which directly looks at the Sagrada Familia, the famous temple and tourist destination in Barcelona. His intense gaze tells us that the temple is his object of sexual desire. This is made even clearer in page three, which shows the detective looking at the temple, which is sketched as a woman laying on her back, with her legs up and her vagina exposed, as shown in **Image 3**. Later on, Marc's attention turns from the Sagrada Familia to Lucille, the woman who has hired him to solve her brother's murder. She is completely naked, just as him, and the temple looking out his window. After Lucille and Marc have sex, a white strip precedes the turning of the story from imagination to reality. At this point the authors unveil that the private eye does not exist: in reality, Marc is an architect who has lost his mind and is confined in a psychiatric unit. Contrary to the detective he imagines himself to be, he is sick and debilitated. As can be seen in **Image 4**, out of his window, he is still looking at the Sagrada Familia. His desire for the temple continues to be strong in real life.

Image 3. Private eye Marc looks at the Sagrada Familia temple, sketched as a woman

Image 4. Real Marc, who is an architect, contemplates the Sagrada Familia through his window at the psychiatric facility

There is a connection between the Sagrada Familia and Lucille: both are women Marc desires. Therefore, the short story portrays Barcelona's urban space as a woman Marc wants to consume. This idea is related to the history of urban space, being traditionally planned and utilized by men. Here it is important to remember the figure of the flâneur, the masculine occupant and observer of the European cities of the nineteenth century, and the basis of the theoretical concept of the *male gaze*[4]. According to researcher John Urry, the *male gaze* is also the foundation for the *tourist gaze*, both characterized by consumption, of women and space respectively[5].

The Sagrada Familia is very often the first building tourists visit when they arrive to the city; it is the first element of Barcelona they consume. With Marc's fixation on the temple, the authors illustrate the main narrative organizing urban space in Barcelona: the local Catalan government has converted Barcelona into a consumable product for global financial companies, real estate investors, and foreign visitors, actors who enjoy the services provided by a city prepared to satisfy them. The masculinity present in the story also reflects on the powerful parties organizing Barcelona until very recently. Since the celebration of the 1888 Universal Exposition up until 2015, male architects, urban planners, politicians, businessmen and financial investors controlled the city, modifying its spaces. Sometimes these urban transformations included a social perspective, as it is the case with the 1992 Olympic Games, which restored the city's outskirts, historical center and port area, and created parks and public spaces like squares for the long-term resident enjoyment. However, after the Olympic project, in the majority of Barcelona's recent urban transformation, such as the Fòrum Universal de les Cultures in 2004, the social element was secondary and not always present[6]. Considering all of this urban history, it is crucial that real Marc in the story is an architect. The desire on Marc's eyes while contemplating the Sagrada Familia illustrates that he wants to continue to possess the city, but he is no longer able to do so due to his confinement in a psychiatric unit. The authors are indicating that the current urban organization based on tourism is sick, crazy, and no longer valid. With the confinement of the architect, Corominas and Martín Pardo are advocating for control measures on new constructions that foster the global Barcelona brand.

Barcelona. Los vagabundos de la chatarra

Barcelona. Los vagabundos de la chatarra, created by Jorge Carrión and Sagar, is a graphic journalistic novel. Influenced by cartoonist and journalist Joe Sacco's graphic journalism in works such as *Palestine* (1993), Carrión and Sagar's novel is a graphic representation of a real journalistic investigation they undertook on junkyards and scrap dealers in Barcelona. *Los vagabundos*[7]' main focus is on an occupied factory in the neighborhood of Poblenou; this is the epicenter of the scrap dealers' world, with three hundred inhabitants living in the building, most of them illegal immigrants. Through interviews with immigrants and Catalan and Spanish residents who also participate in the junkyard businesses, the reader discovers the suffering and invisibility of the immigrant community. The authors' main objective is to indicate the city hall's continuous marginalization of the immigrants and their exclusion from the image of global touristic Barcelona. Carrión and Sagar also emphasize the hypocrisy of the system: the local government that tries to eliminate immigrants utilizes their labor to construct cultural and touristic infrastructure that will attract global visitors and investments. In addition to this, the Catalan independence movement is portrayed as a smokescreen to distract local residents both from the immigrants' mistreatment and the turning of Barcelona into a product for foreign visitors to consume.

One crucial idea in *Los vagabundos* is that Barcelona is multiple cities at the same time. The authors focus their critique on the image of the city that concentrates on tourism, and the urban modifications that this industry creates in the metropolis. This can be seen in the several pages that the novel dedicates to architect Fermín Vázquez, responsible for the restoration of Els Encants, a Barcelona flea market where scrap dealers are very present. Vázquez's illustrations appear in *Los vagabundos* to portray the official discourse of the market restoration project, which is consistent with the one described in the architect's website[8]. In this way, during one of Vázquez's appearances, he explains that the renovation allows the market to directly communicate with the Sagrada Familia and the Agbar Tower. One of the main renovation's purposes is, therefore, to align the market to the attractiveness of these two global touristic destinations.

During the graphic novel, however, several interviewees explain that the renovation jeopardizes a big part of the functioning of the market: the auctions of deceased's belongings, which are operated mostly by Moroccan immigrants. The restoration project conceals this old practice, which dates back to the fourteenth century in Barcelona, in a lower floor of the market, which is then hidden even more under a modern dome. Before this structural modification, the auctions developed at street level. In another page, Vázquez's illustration reappears to ensure that the dome of Els Encants does not conceal activities developing in the market but acts as a mirror that casts the market to the city and introduces the city to the market. The reference to the mirror indicates the interest of the project, and consequently the local government's interest, to portray a specific image of the market to future visitors. Depicting these commentaries and the objective of associating the market with structures like the Sagrada Familia and the Agbar tower, the authors showcase the city hall's aim of turning all urban spaces in Barcelona into touristic destinations for the foreign visitor to enjoy. At the same time, the graphic novel highlights the inconsistencies inherent in this enterprise. The renovation of Els Encants conceals the activities developed by immigrants in a lower floor, under a modern dome. However, the project does not completely eliminate their presence, as they are basic for the market's functioning, and therefore, basic to attracting new visitors to the modern outside appearance of the market.

The authors portray the touristic city, but they also introduce the reader to another Barcelona: the world of the scrap dealers, defined by poverty. This is another city in itself. Carrión and Sagar, which are actually depicted in the comic on several occasions, visit an occupied factory where three hundred people live. Its inhabitants have transformed the factory and it now has different areas with bars,

restaurants, and even a mosque. It is obvious that this immigrant city is directly in contradiction with the touristic city the authors presented earlier. Through interviews with immigrants living in the building, the reader learns about their misery: the ever-lasting threat of eviction in the factories they occupy, the dangers of not having a job and not being able to provide for their families. The scrap dealer's world is not the only hidden city in Barcelona: this world is supported by other underworlds, such as the legal junkyards and the port area, where metal sea containers are recycled, located very close to the beaches visited by millions of tourists every year. These other netherworlds, however, are legal and ran by Catalans and Spaniards. Through their interviews, the reader discovers that Catalans and Spaniards performing the same work as the immigrants are in a far better position solely because of their nationality. The city hall's support to the legal scrap dealers and junkyards while the city representatives ignore the immigrants' situation on purpose is another idea the authors pinpoint.

The very contradictory cities developing in Barcelona are brought together in the ending of the graphic novel. In the last pages, the authors combine real tweets from the town hall's Twitter account with illustrations of the factory demolition where the three hundred immigrants lived. Some of the tweets that complement the drawings indicate the reasons of the demolition: the city hall will build new hotels and develop a commercial expansion in the area. Other tweets indicate that the evicted immigrants were offered temporary homes. One of the last images of *Los vagabundos* is a panoramic view of Barcelona from the sea. In this illustration, in the sea there is an enormous boat carrying iron beams into the port area. The real tweet from the city government that accompanies this image indicates that all beaches in Barcelona are in a good state to swim. This panoramic view conveys two different cities clashing: the tweet highlights how the touristic image of the city is sponsored by the town hall through social media, while the boat carrying metal indicates that the city hides an incredible dark reality behind its touristic branding.

While tourism is heavily condemned in *Los vagabundos,* some strips in the graphic novel criticize the Catalan independence movement, indicating that politicians use the movement's traction to divert the residents' attention. The comic begins with an illustration of an independence demonstration; hundreds of individuals are depicted walking in the street, waving Catalan flags in the air and holding banners in front of the Arc de Triomf monument. At the bottom of the page, in black and white, there is a scrap dealer passing through the space with his trolley. The contrast between the black and white scrap dealer and the color of the rest of the illustration highlights the invisibility and vulnerability of the immigrant population. The demonstrators are not looking at the scrap dealer; in fact, they are all turning their backs at him. This showcases that the independence claims are utilized as a smokescreen to distract the Catalan population from internal issues, such as the very needed regularization of the illegal junkyards and scrap dealers.

The graphic novel depicts how the city strives to become a perfect leisure destination while the immigrants' presence is progressively eliminated or moved to non-touristic locations. Contradictorily, their bodies build the city that wants to hide them. At the end of *Los vagabundos*, the authors represent the demolition of the immigrant occupied factory and indicate that the workers doing the demolition are all black. During an interview, one of the illegal immigrants explains that he participated in the subway's construction, one of the basic modes of transportation in Barcelona. These ideas emphasize the hypocrisy of the economic, social, and cultural systems developing in Barcelona at the time of the graphic novel's publication. The touristic enterprise complicates the already difficult lives of the immigrant community, and both the local population and government look the other way. As the illustrated version of Fornier, one of the authors, mentions during the comic: "Only when I started looking at them [the immigrants], they started to become visible, and they started multiplying"[9].

However, ignoring the situation has not proven useful, as the touristic renovation of the city is now not only affecting immigrants but also many Catalan and Spanish residents, especially of low-economic status. There were more than 4.000 evictions per year between 2015 and 2017 in Barcelona, not only of immigrants but also of Spaniards and Catalans[10]. *Los vagabundos* portrays the growth of the tourism industry as a problem both for immigrants and residents, and for that reason, I argue that the authors are signaling the powerful implications of uniting both immigrants and residents in protesting the commodification of the city. As it is usually the case with other works of graphic journalism[11], *Los vagabundos* does not want to entertain but to reveal a problem and create an emotional response that encourages the reader to react against it.

CONCLUSION

Four years after the publication of "Marc Mystery" in 2011 and two months after the publication of *Los vagabundos* in 2015, Ada Colau, the first woman to become mayor in Barcelona, started her term. Before becoming a mayor, Colau was an anti-austerity advocate that was very active in the Spanish demonstrations during the 15M movement, a sociopolitical movement created as a reaction to the governmental policies taken by the EU and the Spanish government during the 2008 economic crisis. This is important for this investigation because she is the first mayor in Barcelona to restrain the power of the tourism industry. In 2017 she issued a law that temporarily ceased the construction of new hotels and the issuing of licenses for tourist apartments. In December 2019 the town hall finalized the first public housing construction made of recycled sea containers in downtown Barcelona. The apartments, cheap and fast to build, are a temporary housing complex for evicted families and fill empty lots that would have contributed to gentrification[12]. With these promising initiatives, Colau is tackling the housing crisis in the most touristic neighborhoods and, as a result, the city is starting to return public space to citizens from the hands of global economic financial companies and the tourism industry. Her initiatives are the first political responses to the residents' anti-touristic claims, such as the ones I analyzed in this paper.

NOTES

[1] Kara Fox, "Venice becomes the front line in the battle against overtourism", *CNN*, June 15th, 2019, https://www.cnn.com/travel/article/venice-tourism-overcrowding intl/index.html#:~:text=Venice%20received%20more%20than%2036,rise%20on%20the%20previous%20year.

[2] Carol Pogash, "Gentrification Spreads an Upheaval in San Francisco's Mission District", *The New York Times*, May 22nd, 2015, https://www.nytimes.com/2015/05/23/us/high-rents-elbow-latinos-from-san-franciscos-mission-district.html.

[3] George Parker Anderson. *American Modernism, 1914-1945* (New York: Facts On File, 2010), 59.

[4] Elizabeth Wilson, *The Sphinx in the City: Urban Life, the Control of Disorder, and Women* (Berkeley: University of California Press, 1991), 93.

[5]John Urry, *The Tourist Gaze* (London: Sage, 1990), 138.

[6] Mari Paz Balibrea, "Urbanism, culture and the post-industrial city: challenging the "Barcelona Model" in *Transforming Barcelona*, edited by Tim Marshall, 205-224. New York: Routledge, 2004.

[7] From this point forward, I refer to *Barcelona. Los vagabundos de la chatarra* with *Los vagabundos* to facilitate the paper's reading.

[8] "Mercat dels Encants," *b720*, accessed June 27, 2020, http://b720.com/es/portfolio/mercat-dels-encants/.

[9] Translated from Spanish by me.

[10] Domingo Marchena, "Barcelona sufre más de 4.000 desahucios al año", *La vanguardia*, February 13th, 2018, https://www.lavanguardia.com/local/barcelona/20180213/44756492594/barcelona-sufre-mas-cuatro-mil-deshaucios-pah.html.

[11] Todd Schack, "'A failure of language': Achieving layers of meaning in graphic journalism," *Journalism* 15 (I) (2014): 109–127, accessed June 30, 2020, doi: 10.1177/1464884913486022.

[12] Clara Blanchar, "Barcelona estrena los primeros pisos sociales fabricados con contenedores de barco," *El país,* December 16th, 2019, https://elpais.com/ccaa/2019/12/16/catalunya/1576490911_461954.html.

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AHMEDABAD: THE CITY OF VISIONARIES AND VISIONARIES OF THE CITY

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INTRODUCTION

The historic city of Ahmedabad was inscribed into the UNESCO World Heritage list in 2017 under the criteria (ii) and (v)[1]. The reason was that the city has an intrinsic myriad of tangible elements of heritage testified by its historic built form and monumental architecture which reflects the succession of eras within its intricately layered past. These are strongly associated with the city's intangible memory comprising its identity, culture, traditions and the everyday life of its resident communities in a dynamic way.

Recent decades have revealed the city's vulnerability towards the pressures of rapid urbanisation. This is substantiated by the phenomena of depopulation and abandonment of inner-city spaces resulting from migratory flows, overcrowding, lack of resources and the need for economic growth and modernisation.

The paper is an attempt to investigate patterns of urban change and evolution in the old city of Ahmedabad while highlighting critical challenges pertaining to conservation and heritage management emerging from a complex web of issues, directly or indirectly affecting different stakeholders of the city.

THE CONCEPT OF URBAN HERITAGE IN INDIA

The concept of urban heritage essentially refers to the historic built fabric including monuments and archeological remains[2] as well as its living, inhabited spaces in conjunction with its intangible elements in form of the life of its resident communities that add to its value and meaning[3].

Discourses around the theme of urban heritage have revolved around the idea of addressing historic cities more holistically as living environments[4] as opposed to safeguarding designated components of the historic fabric[5].

The Indian perception of urban heritage management has been greatly influenced by the ideas of Western pioneers in the field of urban studies. When Patrick Geddes[6] came to visit India in 1915, he pointed out the importance of a deeper understanding of urban heritage for an efficient urban planning approach integrated within the local context (physical as well as sociocultural) along with the needs for a new development.

The emergence of the practice of heritage conservation in India is attributed to the works of British historians who, as a response to the threat of vandalism and destruction of historic artefacts, translated British ideologies of conservation into relevant processes in India[7]. Until the early-twentieth century,

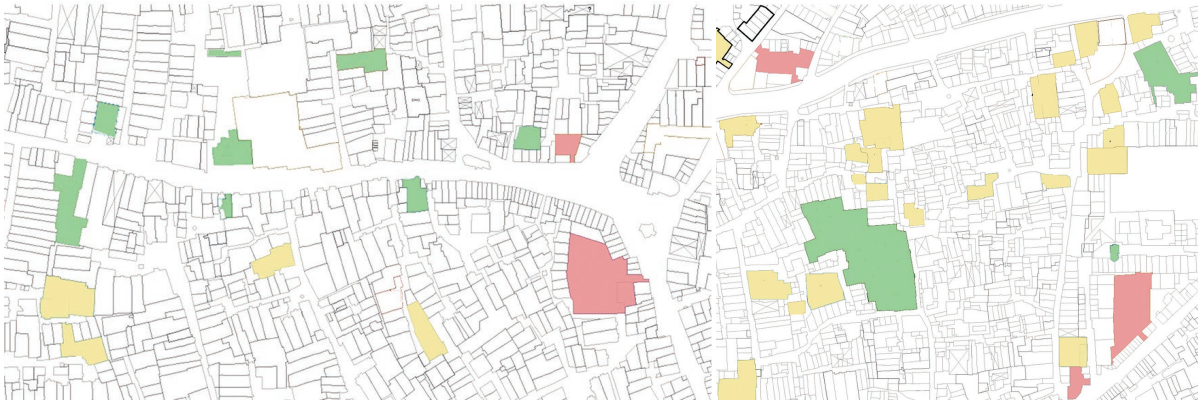
Acts on heritage preservation in India were limited to the conservation of monuments. The late 1900s saw the formalisation of heritage conservation efforts through educational training in the field as well as the establishment of the Indian National Trust for Art and Cultural Heritage (INTACH) in 1984, a non-profit organisation with a mission to conserve heritage through several initiatives and collaborative projects[8] and the inclusion of community-based knowledge systems[9]. More recently, in 2015, a number of Government-led schemes focusing on heritage-based urban development through the revitalisation of urban infrastructure and tourist facilities around heritage assets and some area-based retrofitting, renewal, redevelopment projects have been launched[10]. While some of these initiatives successfully integrate urban development with heritage management, others demonstrate the inability to utilise the potential of heritage resources as vital components that facilitate sustainable urban development[11]. Furthermore, in the absence of a central, overarching framework for urban heritage management in India[12], a myriad of state-specific or city-specific strategies for the protection of urban heritage have emerged over the recent years.

Urban heritage in India demonstrates a strong interrelationship between its tangible and intangible elements. Tangible built heritage can often be perceived as a backdrop that allows for the manifestation of the components of intangible cultural heritage preserved by local resident communities in form of everyday life[13] in a combination of flexible and fixed patterns of space usage.

The challenge of urban growth or an opportunity for urban regeneration

The historic cores of Indian cities are often densely packed areas perforated with small and large open spaces forming a close-knit, porous built fabric. These cores are usually faced with the complex challenge of maintenance and management of heritage components (both, tangible and intangible) amidst rapid urbanisation in the form of uncontrolled development arising from the desire for modernisation and economic growth while addressing housing demands of the ever-increasing urban population of the country[14]. With the primary focus of Indian cities being on urban infrastructure, historic inner cities often remain neglected, subsequently causing serious problems of overcrowding, sanitation and decay[15]. Moreover, pressures of climate change and tourism add to the vulnerability of these environments[16]. Considering the challenges in coping with the effects of modernisation, much of the reshaping of the physical form and the environment here may also be attributed to changes in the needs and aspirations of its residents who are “actors in heritage”[17].

In such a scenario characterised by unbounded urban growth, it becomes crucial to safeguard natural and cultural heritage through the integration of heritage management into transformation strategies[18]. In this case, it may be useful to recognise components of urban heritage as socio-cultural and economic assets[19] that have the potential to generate revenue for maintenance and revitalisation and promote social cohesion amidst diversity[20]. This potential can be explored through urban regeneration, an effective tool to manage change and channelise existing heritage assets towards progress[21] that aims to bring about long-term improvement in declining historic areas through “a comprehensive and integrated vision and action which leads to the resolution of urban problems”[22].



Islamic institutes *Hindu institutes* *Jain institutes*

Figure 1. Multicultural neighbourhoods (These maps are adapted from the Nomination dossier for the Historic city of Ahmedabad by Centre for Conservation Studies, CEPT University, 2016)

AHMEDABAD: THE CITY OF VISIONARIES

The historic city of Ahmedabad was founded in 1411AD, when Ahmad Shah[23], the second sultan of the Muhammadan dynasty, established the Walled City on the eastern bank of the river Sabarmati. The site historically was considered particularly ideal for the growth of the city.

Post colonisation, Ahmedabad has been a city that has developed and modernized on its own terms, based on a social, economic and political governance, through an active participation of its citizens. The initiatives taken for its development led to the flourishing of industries, economical activities, education and modern institutions that moulded the culture of the city. The dynamic, resourceful communities that reside in the city have created a symbiotic coexistence of tradition and modernity, while constantly upgrading in the fields of commerce, art and culture. As a result, the city today is a major industrial and financial district with its urban agglomeration grown twelve times that of Walled City. In June 2015, the city was selected to be among the first 20 Smart Cities of India.[24]

Over time, the Walled City has retained its original morphology, with a central core and radial streets. Its proximity to the river made it an ideal location for the development of sub-continental trade routes that facilitated early stages of development in the city.[25] Since its formation, Ahmedabad has witnessed the rule of five major dynasties, under which the city evolved[26] (Figure 2).

Early scholars described Ahmedabad as a megapolis, a major textile manufacturer[27] with an intricate, appealing street network[28] embellished with magnificent palaces and mosques that were more remarkable than those in Delhi or Agra.[29] The city passed through numerous phases of insecurity and political unrest that reflected in its built environment in the form of desolation of urban areas and the deterioration of the city walls until its annexation by the East India Company in 1818 AD.[30] During the period of its colonization, the city rose from its ashes, both culturally and economically. The introduction of Western education in India by the English inculcated modern thought within the Indian culture and restored order in the city[31].

Figure 2. Teen Darwaza at 6 am and Bhadra Square during Sunday Market © Authors 2019

The visionaries of the city

The history of Ahmedabad is also the result of the contribution of many open-minded entrepreneurs. By 1861, the city transformed into a worldwide textile center becoming known as "Manchester of India"[32]. Parallel to this industrial growth, the city population substantially increased and led to urban growth outside its walls.[33] The western part of the city saw the development of several patronized institutions.[34] Apart from this, the city witnessed many social reforms such as women's rights and the Indian freedom movement led by Gandhi.

Post-independence, many notable personalities from Western countries were invited to contribute to the vision of modern Ahmedabad. These included Le Corbusier and Louis Kahn, pioneers of the modern movement in architecture, who designed landmark buildings, which laid the foundation for modern architecture in the city, guiding the then new generation of Indian architects.

The tangible and intangible soul of the Walled City

The Walled city is characterised by an intricate urban tissue of tightly packed houses along narrow streets, integrated into a multicultural palimpsest of different eras.[35] This labyrinth of neighbourhoods, called *puras*[36] comprising of *pols*[37], reflects the social divisions of the population within the layout of the city. The morphological structure of the urban space defines a sense of hierarchy from the main city roads to the residential area (*pol*), to the family or community (*khancha, khadki* or *dela*).[38]

The configuration of the *pols* provides privacy to the occupants in spite of its proximity to the public areas. Accessed through a massive gate, each *pol* is typically an assemblage of the following spatial elements: (i) a religious institution (typically a temple or a mosque) (ii) a blackboard for sharing dates or commitments relate to the community life; (iii) a wooden or stone carved bird feeder called *chabutaro*; (iv) a community well[39] along with a water pot atop a podium; (v) and an open space called the *chowk* for social engagement, usually limited to the inhabitants of the pol[40]. The *pol* houses are typically two-three stories high, 5 to 6 meters wide and 12-18 meters deep with a courtyard in the centre with shared walls forming a cohesive structural system. The facades are adorned with finely carved wooden columns that lend a rich character to the streetfront. The development of the *pol* settlement symbolises a sense of belongingness among its inhabitants and exemplifies a strong sense of community (Figure 3).

Figure 3. Traditional façades, abandoned houses and incoherent renovation in the Pols © Authors 2019

The old city of Ahmedabad presents connections between the tangible and intangible components of heritage. One such example is the celebration of *Uttarayan*, the annual kite flying festival. The festival as a significant element of intangible cultural heritage manifests in the tangible realm by creating a dynamic flurry of activity on the closely packed terraces of the old city. During the preparatory stages of the festival, streets transform into markets lined with kite-making workshops (Figure 4). The festival involves the participation of multiple users including tourists, visitors from the western part of the city and the residents themselves.[41]

Figure 4. Informal and temporary uses on the streets: Street transformed into a kite market during the festival of Uttarayan, temporary vegetable market at Manek Chowk, informal settlements near Raikhad Gate © Authors 2019

THE AHMEDABAD PERSPECTIVE OF URBAN RESILIENCE

The management of change in the historic city of Ahmedabad has been a subject of particular concern since the late 1900s. Patrick Geddes after his visit to the city in 1915, reported the question of the medieval remains of the 500-year-old city fortifications as critical and advocated its protection[42]. In 1984, the Ahmedabad Municipal Corporation (AMC) observed a rapid decline in the heritage resources of the city which led them to undertake a series of studies under the expert guidance of institutions such as the Ford Foundation and the Conservation and Research of Urban Traditional Architecture Foundation (CRUTA) in order to initiate policies and measures for the conservation and management of the walled city. A milestone in the heritage conservation journey has been the Indo-French project that led to the first analytical documentation of the complex condition of the built heritage in the historic city[43]. After a series of projects[44] followed by the preparation of a dossier for World Heritage nomination eventually led Ahmedabad to bag the World Heritage inscription in 2017.

The challenge of conservation in Ahmedabad, like in the case of many Indian cities lies in dealing with rapid urbanisation and the desire of modernisation (Figure 5). The historic city suffers from congestion and high pollution levels amidst an inadequately maintained built environment. Moreover, in recent years, large scale top-down regeneration projects such as the Sabarmati riverfront development and the MEGA (metro rail) project have been pushing the walled city into a vulnerable state due to the physical and sociocultural impacts that they have on its historic fabric.

Figure 5. The current conservation in Ahmedabad: demolition and reconstruction of Raikhad Gate by AMC (pictures: March and November 2019); demolition of a traditional Haveli listed Grade II.

Critical issues - obstacles to resilience[45]

Studies done in the old city since the last few decades have thrown light on several issues and threats entailing its urban heritage. While some of these issues are currently being addressed by the AMC with the assistance of academic and non-profit bodies, several others continue to persist. In order to get a holistic understanding of how these issues manifest tangibly in the built fabric, it is crucial to view them from the perspective of each of the multiple stakeholders' groups of the historic city that may have the direct or indirect power to facilitate constructive change. These can be broadly categorised as - resident communities, local businesses, visitors and governing bodies or authorities.

Resident communities, the primary custodians of the city's heritage in response to their aspiration for a better quality of life often resort to inappropriate interventions the intensity of which ranges from minor modifications to building new floors or in extreme cases, entire new buildings on their house footprint. This results in the loss of character and structural cohesiveness in the existing fabric thus increasing vulnerability to natural disasters, particularly earthquakes. In some cases, the residents' desire for modern living in the Western part of the city leads to complete abandonment or renting out of properties resulting in an ever-changing demographic.

For stakeholders who may or may not reside in the old city but own shops and businesses there, the need for economic progress leads to the use of historical buildings as warehouses which exerts tremendous amounts of dead load on these structures, making them fragile, in turn destroying their

traditional fabric.

From the visitors' perspective, although the old city houses a significant number of bed and breakfasts and boutique hotels, interpretation facilities for visitors that allow them to orient and familiarise themselves with the city are largely missing. The visitor group in the old city is not always limited to tourists but also includes students, researchers and people from other parts of the city who occasionally might want to pay a visit for specific purposes.

For governing bodies or authorities, ranging from local to state to central governmental agencies, the challenge of managing a living World Heritage property of such a scale by keeping track of an entire gamut of problems such as unauthorized demolitions of listed properties, encroachments along the city wall and maintaining an exact updated record of the state of heritage within the city has proven to be a herculean task, particularly post gaining a global reputation from the World heritage inscription.

The challenges discussed above are intricately linked to one another and present the need for the implementation of a holistic regeneration strategy that may be applied at the scale of the entire historic city while avoiding fragmented interventions or solutions.

Visionaries of the city: towards a resilient future

The revitalisation of the old city must acknowledge the interconnectedness of the tangible urban tissue and the intangible human dimension. Viewing issues through the lens of various stakeholder groups highlight a host of overlapping consequences that present serious challenges for the management of heritage in the old city. These include the widespread phenomenon of abandonment, insensitive repairs and modifications, loss of structural and architectural integrity, unauthorised demolitions of listed properties for new developments, incompatible uses in old buildings, unmanaged open spaces and lack of urban infrastructure such as street lighting, signage and so on.

Heritage is collectively produced and valued by its multiple user groups and therefore makes the consideration of stakeholder perspectives as discussed previously is crucial within this vision. Therefore, tools for the regeneration of the historic city may be developed in correspondence with not just their needs but also their responsibilities towards the protection and maintenance of their collectively owned and produced heritage.

From the above study, one can arrive at a set of context-specific tools that may be employed in order to support the living urban heritage of the old city as a repository of rich vocabulary that needs to be restructured and reinterpreted to facilitate its integration within the process of urban change. These tools may also be considered as ways to facilitate the enhancement of resilience and livability in the historic city.

(i) **Community engagement and training** is a common ground for positive and impactful change within the historic city. The development and provision of 'user manuals' for the maintenance of historic structures may be prepared. These may include design regulations for sensitive approaches to service upgradation, new construction as well as defining temporary uses for abandoned spaces.

(ii) **Regulation of commercial activities** needs to be in conjunction with the patterns of hierarchy within the street network. A clear zoning of pedestrianised streets distinguishing them from the main streets allowing vehicular traffic must be in place. Inappropriate use of historic structures such as warehouses must be strictly prohibited. This type of regulations are more dependent on binding laws declared by local governing bodies.

(iii) **Visitor management** is an important tool for the communication of heritage values of the historic city to tourists as well as locals. The potential of using urban voids and abandoned buildings as spaces for tourist interpretation facilities may be explored. Maps and signages at

major junctions within the city, barring and discouraging movement within the inner residential streets will facilitate an ideal balance between local and visitor needs. Community involvement in the provision of tourist facilities will promote intercultural communication and understanding.

(iv) **Collaborative projects** with academic institutions and international heritage bodies for documentation and analysis of historic structures along with the task of developing design guidelines can be taken up along with a stronger engagement with the local community may accelerate positive change.

CONCLUSION

In the context of the ongoing research, it becomes crucial to rethink and re-strategize management solutions for the old city of Ahmedabad. Multi-scalar regeneration projects that have the potential to integrate the various elements within the overarching system of heritage (from urban landscape to singular building), are arguably one of the few approaches that may activate resilience while responding to new scenarios for the future of the historic city.

This study does not claim to define conclusive solutions. Rather, it implies appropriate actions for a sustainable development in several directions through stakeholder perspectives. In a constantly changing reality, the relationship between concrete experience and collective vision can activate virtuous transformative processes. A phenomenon of "alternative return" in these spaces can generate new economic cycles on multiple scales and multiple layers. The aim to invoke a renovated sense of citizenship and belonging to those places, means to understand the site in its interchanging values and dynamic relationship with social, economic and cultural affiliations.

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THE COMPLEXITY OF THE NATURAL AND BUILT ENVIRONMENTS

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INTRODUCTION

Today, the natural and the human-built environment are becoming less defined, in part due to the Anthropocene. Philosophy has critiqued this (and other) dichotomies; humans are part of nature and seeing ourselves as separate is part of the problem. This blurring is generally a matter of degree, with wilderness areas as the least disturbed by human interaction and large urban centers at the other end of the scale. The emergence of the information age adds another layer; Artificial Intelligence is becoming so ubiquitous that what is considered natural is even harder to determine.

Contemporary architecture can relate to nature, but often it is done in a formal, superficial way rather than understanding the underlying ethics and systems of the natural world. Landscape urbanism is becoming more pervasive, but do the designers of buildings really understand the natural environment?

This paper will explore the most relevant connections between complexity science and design, suggesting a design pedagogy for moving forwards in a more sustainable way. An understanding and application of complexity theory can help us with this issue to become more critical,[1] from the design of individual buildings and objects to the form of cities and infrastructure, to ensure more sustainable and aesthetic futures. If we are making interventions in a world and climate that is complex and indeterminate, then surely, we need to understand what this actually means if we hope to engage in a meaningful way.

WHERE ARE WE TODAY?

This paper posits that we are in a moment of aesthetic crisis that is completely unsustainable (economically, environmental and socially). Modernist and mainstream contemporary approaches are too simplistic and un-resilient. It is not about designing and making more complicated forms necessarily but adding layers and understanding of complexity (relationships) to our generally banal, built environments that often lack the materiality, diversity, scale and sense of life that many older, vernacular, informal cities and the natural world possess.

Humans are the most complex entity of nature, with social organizations being even more complex. Cities are among the most complex human-made systems, but are still unfortunately unsustainable, with individual buildings being generally the simplest in the hierarchy of the order of systems being generally akin to “frameworks,” although many are attempting to get smarter and to reach the level of

"thermostat."[2] We as humans are part of nature, not separate, and so why are our designed environments not working for the continuation of the natural world that is vital for our existence?
Is it that these second-degree objects, forms and systems (or nature manipulated by humans), that we create are not necessarily ok? We are beginning to understand that their effects, use and processes are important i.e. as in society, everything we do and make is not ok. We have to extend our humanistic values and ethics to the products and processes we create. How do we start to evaluate and start to understand this, philosophically, environmentally and scientifically? This is essentially what makes some design practices critical or not. Understanding these labor and material flows are essential, but can be complex, as often flows and second-hand effects are fairly invisible and have multiple relationships to beings and artefacts e.g. pollution and health and climate justice.

UNDERSTANDING NATURE AND OURSELVES

The author considers that all matter and beings are essentially inter-connected in some way in the world. This paper's scope will attempt to focus more specifically on complexity's connections between the environment with philosophy and science. The author had previously published a list of the main characteristics of biological systems,[3] but what about abiotic systems too? This is why the study of complexity is important. It is more pervasive and can be a framework that helps us put all the pieces together; the living world, including biotic and abiotic systems, on multiple layers, plus even human built systems like the economy and the World Wide Web. The following definitions were created by the author after attending a Winter Seminar on Complex Systems by the Santa Fe Institute,[4] following an online course, related to the book, *Complexity*: *A Guided Tour,* by Melanie Mitchell.[5] I concluded that the main general characteristics of complex systems were:

1. They are composed of simple components or agents (relative to whole).
2. There have non-linear reactions among components.
3. They have no external control.
4. They show emergent behaviors over time.

From this I prioritized some key concepts that seemed relevant for architecture and urban design:

1. The systems may differ in physical attributes but are generally alike in how they handle information.
2. Entropy and the Second Law of Thermodynamics is one of the universe's fundamental laws; understanding that we are far from equilibrium.
3. Self-organization, fractals and genetic algorithms are pervasive. (N.B. cellular automata are an idealized GA model).
4. Networks are ubiquitous, to understand flows one needs to understand networks (these are often open and multi-layered).
5. Scaling happens in power laws.
6. Concepts of emergence, dynamics and adaptation are pervasive.
7. Hierarchies exist in nature and not all systems are bottom up, e.g. predators in kelp. Often systems are complex hybrids of centralized and decentralized control.

Obviously, these lists are paradoxical attempts to simplify or represent the complex, but one can argue that is what design does.
Complexity, although not a new understanding, is not part of the mainstream education of architects in any meaningful way. It is probably still most embraced by the scientific community. lya Prigogine attested in 1980 that the "concept of irreversibility on the intermediate, macroscopic level,"[6] which expanded the notion of time and dynamics, and exposed the limits of classical chemistry and physics, "Irreversibility corresponds not to some supplementary approximation into the laws of dynamics but

to an embedding of dynamics within a vaster formalism." [7] This provided a link between the previously separated sciences, changing the concept of "being to becoming," where becoming goes beyond the classical ("Galilean") objective view of science to one which is full of "far-from-equilibrium" objects. The second law of thermodynamics clarifies that it is only the irreversible processes that contribute to entropy, leading to an "one-sidedness of time" verses the classical symmetrical concept of time which led to the understanding of new *dissipative* structures (thermodynamically open vs. the previous closed, deterministic, rational ones). "The future is not included in the past. Even in Physics, as in sociology, only various possible "scenarios" can be predicted. But it is for this very reason that we are participating in a fascinating adventure in which, in the words of Niels Bohr, we are "both spectators and actors."" [8]

For the first time nature, culture and machine could be seen as similar; they are all just levels of organized systems that tend towards entropy or disorganization.[9] Second Order Cybernetic Theory[10] helps us start to understand recursive systems and metasystems. Communication and control are open loop, complex systems that help us understand and speculate on our unknown future.

Prigogine states that science comes from Philosophy. In the philosophical fields these concepts of becoming, control and life were particularly essential to Michel Foucault and Gilles Deleuze and Felix Guattari. They wrote that dualistic thinking and dichotomies implied a mutual exclusion verses a dialectic that is concerned with relationships and difference. With reference to space, Deleuze and Guattari wrote, "Smooth space and striated space – nomad space and sedentary space – the space in which the war machine develops, and the space instituted by the State apparatus – are not of the same nature. No sooner do we note a simple opposition between the two kinds than we must indicate a much more complex difference by virtue of which the successive terms of the oppositions fail to coincide entirely. And no sooner have we done that than we must remind ourselves that the two spaces in fact exist only in mixture: smooth space is constantly being translated, transversed into a striated space; striated space is constantly being reversed, returned to a smooth space."[11] It is important to realize that everything is in a state of dynamism and change.

Many contemporary philosophers follow this foundation and found niches related to concepts that have moved us beyond humans as the center of the universe, like Rosi Braidotti's work on Posthumanism. New Materialism and Object Oriented Ontology are also philosophies that reject an anthropomorphic dominance and seek to understand the aliveness of matter. Catherine Malabou's work with philosophy, neuroscience and plasticity teaches us that the subject is always plastic, not elastic, so we/it never go back to our original form. We are always evolving and changing and cannot go back to the past, so this gives us another reason not to be nostalgic about it! Peter Sloterdijk's work on the individual and the collective is particularly relevant today, when as a society, human relationships and proximities have been turned upside down due to the recent global pandemic and Black Lives Matter movement.

CASE STUDIES

Tom Verebes has labeled our current era, as an 'Age of Indeterminacy' where issues of uncertainty, complexity and emergence are embraced.[12] Even though there is not one known absolute answer to the pressing issues facing us today there is a growing awareness of the positive impact that more bottom-up, organic and 'softer' forms of urbanism can have environmentally and socially. Generally, in critical practice there has been a paradigm shift from object models to dynamic system models.

Historically, the most cited relevant examples to complexity and natural systems are usually those that relate to *Architecture Without Architects*,[13] specific designers like Yona Friedman, Antoni Gaudi, Frei

Otto and Cedric Price, and several key theorists including Christopher Alexander, Walter Christaller, Patrick Geddes and Jane Jacobs. Contemporary relevant design work obviously relates to the past but has been recently built on the pioneering work of landscape architect Ian McHarg and John Frazer, an architectural academic who taught studios with Julia Frazer at the Architectural Association from 1989 to 1996[14] that are still relevant today.

An understanding of complexity seems to be more apparent at the scale of cities by several planners and groups, e.g. the Aesop planning group, The Space Syntax group at UCL and Luis Bettencourt's work at the SFI and now The Mansueto Institute for Urban Innovation in Chicago. Geoffrey West, also of the SFI has worked on Scale and Michael Weinstock's work on the metabolic flows and emergence of cities are also related.

The list of contemporary architectural scale critical practices are vast, but of particular note to the author are the designers that are working on the various concepts of living matter e.g. Rachel Armstrong, Philip Beesley, The Living, Neri Oxman and Skylar Tibbits and dynamics like Chuck Hoberman. Adaptability and temporality can be at varying speeds and scales. Philippe Rahm's work on meteorological architecture attempts to shift design to be more sensitive to climates and invisible forces. Kiel Moe's work attempts to understand the complexities of material flows of projects relating to waste, energy and cost. And obviously there are lots of examples of groups working more directly with issues of social equity and labor.

RECENT STUDENT WORK

So, what does this all mean moving forwards and pedagogically? Pedagogy, like the built environment needs to not just be top down, but should allow for a hybrid, emergent design process that has design as research as it's cornerstone and embraces student agency. Design is a complex, non-linear process, which takes time and effort. Critiques should be conducted in a safe, professional environment, where it is key to stay open-minded to student's concepts and to make sure that feedback is focused around a framework of ethics and theories, rather than personal tastes or unconscious bias. If diversity is really accepted and embraced then it should be clear that there is not a right solution to a design question and that individual directions and differences should be encouraged and developed, rather than seen as mistakes or wrong, unless of course, they are ethically inappropriate. Work that is critical and questions existing, systemic conditions that goes beyond bricks and mortar should be encouraged.

Generally, students need to be educated in these theories and approaches. Architecture students tend to be visual in nature, so making sure that they diagram or create some kind of visualization of their readings, experiences or research at each level is key. Beyond it becoming a record of their thought processes it is a dynamic design tool that helps them understand and connect the ideas in a more integrated way (Figure 1).

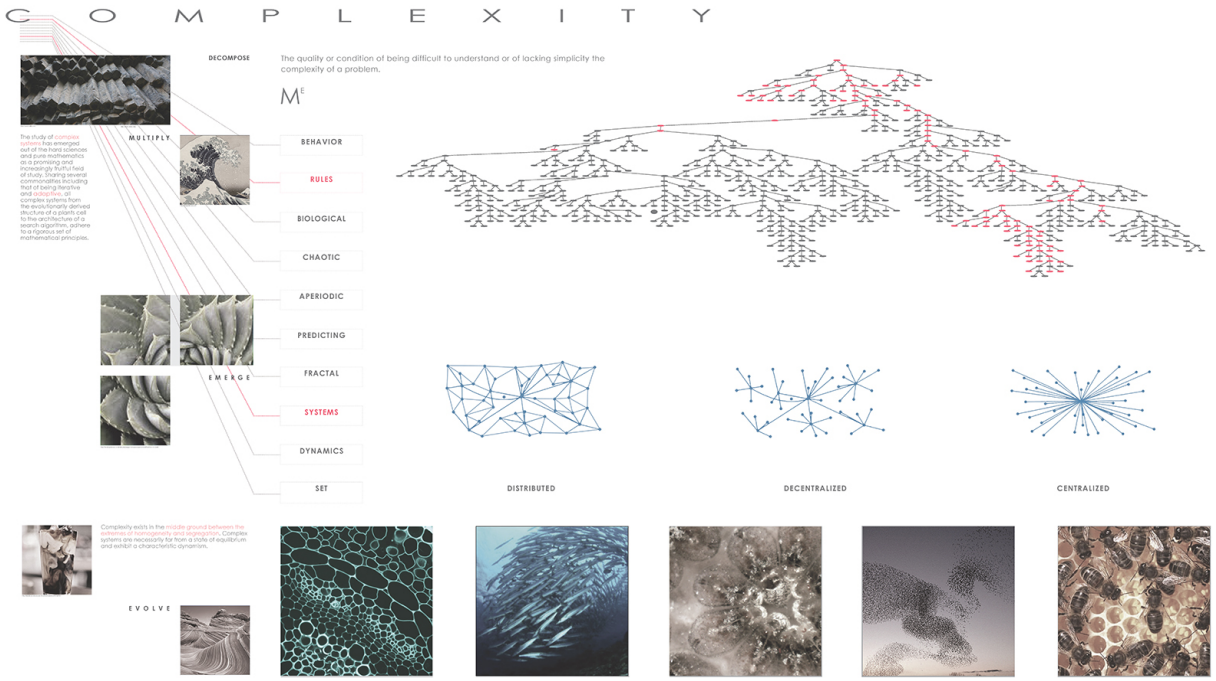

Figure 1. Student work showing complexity relationships, credit: J. Moser, B.Arch, 2018

Mapping and understanding the flows and processes of sites and places over time is something that can help students clearly visualize and understand the concept of change, time, seasons and adaptation. Seeing the built environment more akin to a landscape, in a way that McHarg and James Corner have pioneered helps students gain an understanding of a sense of time. This is important as it helps students realize that architecture's impacts and relationships do not end at the building or site foot print at a specific moment in time. Working at multiple scales can also assist in seeing these flows. To aid in this process, the author over the last few years, has specifically chosen study areas that included boundaries between land and water, where projections of climate change and rising tides increases the drama of the already dynamic edge condition (Figure 2).

Figure 2. Student work showing site mapping, credit: K. Stuteville, B.Arch, 2018

These boundary conditions force students to address change in some form or other. Luyi Huang embraced the dynamic edge condition more than most, which led her to research form finding techniques that were shaped by water and fluidity (Figure 3). There ended up being obvious formal differences between the buildings on the land verses the water and those that were under water, verses embracing the air. As design is an iterative process; students need to learn to embrace these iterations and to see that options allow for reflection and discourse. Ideas and physical models need to be pushed sometimes to failure, to understand the limits and to move forwards. Extreme climates or conditions of

change can help facilitate these differences as they are exaggerated more than in more temperate conditions.

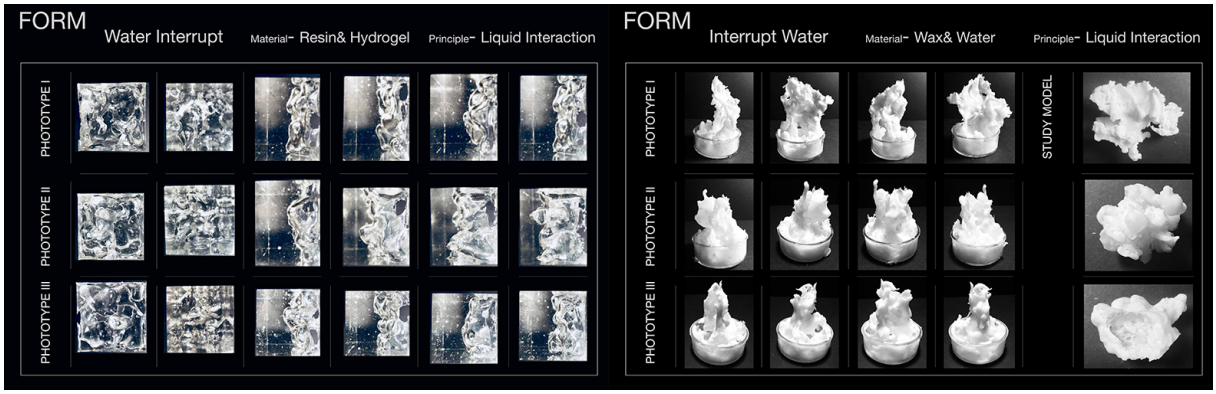

Figure 3. Student work showing liquid form finding, credit: L. Huang, B.Arch, 2018

Understanding the layers and context of the sites on multiple temporal levels, helps students speculate on what the future could become. Students and projects can and should go off in very different directions and some students, depending on their interests can also bring in other disciplines to varying levels. Kate Stuteville combined some very practical knowledge of osmotic power machines and fog nets with inspirations from science fiction literature and film (Figure 4).

CONCLUSION, MOVING FORWARDS

To have a richer, more diverse, creative environment that relates to life vs. a depressive state, one needs to understand that movement, flows, change and oscillations are part of life, rather than a homogenous, potentially balanced, flat-line existence which some of our designed environments and pedagogical environments suggest. The design process and our environment need to be more dynamic and heterogeneous, understanding the complex material, social and environmental flows that exist around us and relating more specifically to the uniqueness of place and climate. These complex flows exist in our design solutions whether we accept them or not, so it is key to start acknowledging and understanding their existence and relationships more, so we can see what our culture has created in a more critical stance. We may not like what we see, e.g. the proliferation of abuse on certain sectors of society and environments, but we need to become more knowledgeable so we can make more ethical (and aesthetic) decisions moving forwards. Students and designers will vary on their speculations and extremes of change, but regardless these design decisions need to come from a place of awareness. Some still argue about the apolitical nature of design and how our agency for change and impact is small. Is this really true, when you factor in all the embodied energy and abuse on people and matter that goes into the creation of the built environment?

Figure 4. Example of 'final' speculative images, credit: K. Stuteville, B.Arch, 2018

NOTES

[1] See K. Michael Hays, "Critical Architecture: Between Culture and Form," Perspecta 21 (1984): p.15, "a critical architecture [is] one resistant to the self-confirming, conciliatory operations of a dominant culture and yet irreducible to a purely formal structure disengaged from the contingencies of place and time."
[2] See Kenneth Boulding's classifications of systems in "General Systems Theory – The Skeleton of Science", (1956): 197-208
[3] Susannah Dickinson "Architecture and Biological Systems" in the ACSA Teachers Seminar Proceedings, 2011, (Washington DC: ACSA Press, 2011), 11.
[4] Santa Fe Institute, accessed December 19, 2020, https://www.santafe.edu/
[5] The MOOC was taught by Melanie Mitchell as part of the Sante Fe Institute's Complexity Explorer's online courses, accessed December 19, 2020, https://www.complexityexplorer.org/
[6] Ilya Prigogine, *From Being to Becoming: Time and Complexity in The Physical Sciences*, (San Francisco: W.H. Freeman and Company, 1980), xix.
[7] Subsequent endnote: Prigogine, xiii.
[8] Subsequent endnote: Prigogine, xvii.
[9] Ludwig Van Bertalanffy's work was key in laying the groundwork for the general theory of systems.
[10] Groundwork of Second Order Cybernetic Theory was laid by Gordon Pask and Gregory Bateson.
[11] Gilles Deleuze and Felix Guattari. *A Thousand Plateaus: Capitalism and Schizophrenia*. Translated by Brian Massumi. (Minneapolis: Minnesota University Press, 1987), 474.
[12] Tom Verebes, ed. *Masterplanning the Adaptive City: Computational Urbanism in the Twenty-First Century*, (New York and the UK: Routledge, 2014), 87.
[13] Bernard Rudofsky's book based on the 1964 NYC MoMA exhibit, *Architecture without Architects: A Short Introduction to Non-Pedigreed Architecture.* (New York City: MoCA),1964
[14] These studios were documented in the publication by John Frazer, *An Evolutionary Architecture*. (London, UK: The Architectural Association, 1995).

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RIGHT TO THE PUBLIC SPACE; THE CASE OF TEHRAN

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INTRODUCTION

When the discussion is revolved around the concept of 'right to the public space', it is important to take into account the establishment of the two main concepts within the Western literature and context; known as 'right to the city' and public/private space'. Therefore, reading a non-western city, such as Tehran, under the lenses of 'right to the city' and 'public/private space' theories would be insufficient if the above-mentioned concepts are to be applied 'directly', without considering Tehran's sociopolitical context. This study, first and foremost is set to reconfigure the Western categories of public/private space when applying into Tehran which can be done by reflecting upon the already reconfigured categories of Arbab/Raayat space by Iranian scholars. After re-conceptualizing the sociopolitical setting of Iran from a different angle, this study will depict a picture on how people, unexpectedly, re-claim the mechanism of established power, transform the qualities of public space and perform a number of 'segmented roles' within public. It is discussed that instead of being confined merely to the two well-established schools of thoughts on the notion of public and private sphere; say Arendt or Habermas, it is also possible to recognize people's right to the use of public space by accounting their expressivity and minutiae of behaviour while in public; performativity. This discussion starts with an overview on two main schools of thoughts on the notion of public/private realm.

PUBLIC AND PRIVATE

Not to mention how the expansion of privatization, gated communities, walls, fences, and ubiquitous CCTVs, transform the modes of ownership, absorb much of the public tissue of streets and squares, reduce the texture and scale of public spaces, and put the notion of the public and private realm into question, but originally the discussion of public and private realm is tied to Arendt and Habermas. In her book, Human Condition published in 1958, Arendt depicts the picture of an ideal public sphere in which people can discuss and debate freely and equally. The large, dense scale urban centres – such as the agora in ancient Athens, or the Uffici piazza in medieval Florence, or Trafalgar Square in modern London – are vibrant centres where people with different origins, gender, style of life, class, can have an equal voice to discuss and debate freely as citizens.

It is debated, by Lefebvre[1] that this condition in which all citizens can come together to debate freely and to make a collective decisions is in fact the spatial configuration of a democratic citizenship: 'where less than half the population actively participated in political life - its agora did at least provide the forum for debate and communication and so helped pioneer the principle of democratic

citizenship'. This is to say that the discussion about public and private space takes into account the right of the citizens. The second school of thought relates to Jürgen Habermas, which is less political, but more practical. Habermasians pay attention to the economic interests of different social classes in the society, in a way that people, instead of simply mixing together or mixing their activities in public, account the economic, ethnic, and cultural circumstances in order to learn about one another's interests and needs. So Habermas's public space is more communicational than political. It is not only tied to the town centres but consisting of any medium, occasion, or event which leads to an open communication flow that itself eventuates shared understandings and common purposes.

TEHRAN

The discussion is that when it comes to Iran, it is not practical to follow Arendtian notion of public space which can be found in Greek Polis in which citizenship is practiced or Habermasian model that interests the free flow of communication among strangers that breeds awareness of the interests of others. Here, Iranian scholars, amongst them Homayoun Katouzian, Parviz Piran, Iman Vaghefi look into how the streets of Iranian cities, instead of practicing the equal participations of citizens in collective decisions, were, in fact, a manifestation of the Shah (king)'s power and will. Vghefi for example argues that up until twentieth century, Iranian cities were considered as extension to the King's property and their names depended on the king who was ruling at the time.[2] For example, Tehran, was called Dar al-Caliphate of Naseri which literally means the Home of King Naser. In order to imply his sovereign policy, the Shah had a total right to rule over the boundaries of his territorial space and the center of his kingdom was called Dar al-Caliphate where the Shah's political administration was concentrated. On the other hand, historically, the ordinary people of the Iranian kingdom was called Ra'yaat (bondsmen) who had to follow the Shah's orders and, in his territory, they were deprived of their rights and their properties even were subjected to the will of the Shah.[3] Even reading the modern history of Iran, namely beginning by the emergence of Pahlavi dynasty in 1925, shows that the more power the Shah gained, the more control he exerted across its territory. The result was that the conception of Dar al-Caliphate remained as a persistent element that continued even after the fall of the Pahlavi monarchy.

However, as it was mentioned before, the aim of this study is to explore how people, unexpectedly, change these models and codes of public, private and social life, attaching new meanings to the use of public/private spaces and re-inventing them in order to overcome the limitations. It is, in fact, argued that "totalitarian cities are vivid and active, because of the culture that is being developed by the sub-underground networks that make productive urban districts".[4] As a result, a new relationship between people and their environment has been emerged that is needed to be considered.

Not only Reza Shah was a 'royal dictator'[5], whose 'modernization from above' programme created a [pseudo]'modern Iran' through negation of all traditions, institutions, and Iranian values that were counted as 'backward' and believed to be the sources of inferiority,[6] his son, Mohammad-Reza also, as a result of the oil revenue boom following its nationalization in 1951, acquired and retained the dominant position in ruling the country until 1979. While Tehran was transformed into a site of ever-increasing consumption, because of the adaption of new spending patterns and Western lifestyles, Pahlavi's modernisation also led to a massive urban migration that intensified the sharp spatial segregation of the city, manifested in the south-north binary.[7]

In order to improve their lives, the urban poor, who were mainly migrants from other towns and villages and were living informally in shanty towns and poor areas outside and inside the boundary of the city of Tehran, formed a degree of constant resistance, not as a form of what Bayat[8] calls a 'deliberate political struggle' against the state or against private landowners or the system of private

property. Rather, their resistance was reflected in the struggle over 'the use of public space, community development, and cultural autonomy'.[9] For example, 'unauthorised land takeovers, illegal siphoning of electricity and running water, demanding basic amenities, extending private domain into the public space, sputtering the public thoroughfares, using streets as markets, assembling in the communities' can be counted as part of these routine actions.[10] For Sassen these sort of activities are the assertion of the urban poor to say that 'we are here' and 'this is also our city'.[11] For example, in Lalezar Street of the pre-revolutionary Tehran, these sorts of assertion of the right to the city could be seen; as the sidewalks of the busy thoroughfares and local market places led the urban poor (among them vendors and hawkers) to distributing goods in informal ways and interacted with middle class on the daily basis in the same geographical areas. Out of this, developed a complex relationship, between the middle class and lower class, and between the lower class and the police – in a way that the boundaries between favour and friendship, bribe and assistance, control and cooperation was often blurred when police were allowing the urban poor to occupy the thoroughfares.[12]

The response to the rapid westernisation programme and uneven distribution of wealth and the rigid spatial polarisation of Tehran in Pahlavi era, with rich occupying the north (bala-shahr), while the poor were settled in the south (paien-shahr), was the Islamic Revolution of 1979. This time Khomeini began his 'Islamification from above' in order to create a 'classless society' or a 'spotless city' and he began his 'city Islamisation project' which was, in fact, the first response of the revolutionary state to the public life of the city, based on the negation of Western culture by means of Islamification.

RIGHT TO THE PUBLIC SPACE

During the first year after the revolution, a sense of liberty was in the air which led to a collective participation – from diverse schools of thought, classes, and genders – in building a new, independent, and free Iran. This, in fact, had an extraordinary impact on the atmosphere of the city at the time, creating a revolutionary ideology, energy and optimism which reshaped the practice of using public space in Tehran. It was the spatial and social fabric of the city that was expanded widely and haphazardly, with little managerial direction and few amenities that led everyone – including the marginal groups; women and poor – to claim the city through their physical, vocal, and symbolic presence.[13] Central streets, public parks, taxis, buses, and lines outside bakeries turned into vivid sites to debate and dispute over the meaning of the Revolution as the central authority was collapsed and there were no secret police, no municipality guards, not even traffic police.[14]

Central sidewalks and pavements of the better-off central district, around Tehran University turned into theatrical stages where street vendors (mostly rural migrants, politicized, unemployed youth or students), the stalls and kiosks holders were selling books, newspapers, music cassettes, and tapes of political speeches while taking electricity from nearby power lines to illuminate their surroundings with colorful lights. The sidewalks of central Tehran in the evenings was turning into funfairs, with shoppers and passers-by browsing amid heckling, jokes, music, and plenty of politics.[15]

It can be said that Tehranis, temporarily, could experience what Lefebvre proposes as the recognition of a 'right to the city', which is to:

'*make more practical the rights of the citizen as an urban dweller (citadin) and user of multiple services. It would affirm, on the one hand, the right of users to make known their ideas on the space and time of their activities in the urban area; it would also cover the right to the use of the center, a privileged place, instead of being dispersed and stuck into ghettos (for workers, immigrants, the 'marginal' and even for the 'privileged'.*[16]

Codes of being in public

This temporary turn of the streets of Tehran into a theatrical stage in post-revolutionary period created moments in which, according to Jacobs an open city was created; the city where its streets and sidewalks are the vital organs of a public life and opportunities for unexpected encounter, discovery and innovation are proliferated through complexity, diversity, and dissonance of the built environment.[17] For Sennett reaching to these sorts of openness needs one to be exposed to strangers, to turn outward and to be able to experience differences. It means that when one be able to become a segmented self and excludes his/her self from 'the familiar framework of identities' and social fixities such as race, class, age, gender or ethnicity, then the [modern] fear of exposure to strangers – through debate or talk with another citizen – becomes low and publicness intensified. This society is dominated by ideas of public where the amount of interaction among its members is very high.[18]

However, exercising the right to use of public spaces in any way according to people's will was momentum, since giving this sort of freedom to people also could not be practical for the Islamic Republic that taking the fundamentalism of Shi'a religion into account. As a result, Khomeini unleashed reigns of terror after the revolution – in the form of executions, Cultural Revolution, *amr-e be ma'ruf va nahy-e az monkar* programme which literally means 'commanding what is just and forbidding what is wrong', etc. – which reading them in detail will take us to Foucault's 'production of fear' concept, as he believes that 'fear is what must be produced and reproduced by governmental agents in order to establish the control, supervision, or enhancement of the social body through multiple mechanisms of measurement, calculation, improvement, and preservation of life'.[19]

However, removing diverse and complex activities from the public scene of the city led people to learn 'how to organize their life in the closed spaces of their homes, far from both the missiles of war and the revolutionary guards' and as a result 'all social and cultural activities were driven underground' and the public life became internalized.[20] According to Khosravi, when public space is policed and controlled, domestic interiors cease to be the exclusive domain for individual and family life.[21] It means that in this situation, home and interiors become the spaces of practicing new forms of collective life such as art galleries, workshops, clubs, cultural centers, and offices. It can be said that, since the revolution, the edges between the political/public and private/domestic sphere began to blur in Tehran and Iran at large. The highly controlled public spaces of the post-Revolutionary Tehran, and the existence of police and revolutionary militias that enforce moral and dress codes imposed a specific dimension to the private sphere that, until today, turned the domestic realm into an underground public realm for collective, productive and political actions.

Not only Iranians learned how to become invisible within the boundaries of their home to carry on both functions that formerly were happening within the boundaries of public spaces, the Reformation programme by Sayed Mohammad Khatami in the second decade of the Revolution also helped marginalized groups, especially women and youth, to cry out for their rights in the city. They re-defined the codes of being in public and attached new meanings to the use of public/private spaces by working outside the home, exercising in parks, running businesses in the male preserve of the bazaar and walking in the streets while less frequently wear the traditional chador, but wearing more 'new hijab' consisting of a tight, short, colorful jacket (manteau) exposing their body shape, with a small scarf exhibiting some of their hair.[22] Therefore, the city of Tehran first, and subsequently, other major cities, faced massive contradictions and 'in-between' balances between freedom/control, tradition/modernity which manifest itself through a subtle or 'velvet' form of resistance and transgression in physical and virtual space, which are called 'civil disobedience' (nafarmani-ye madani).[23]

The female body, in fact, began to function as a disturbance to the state's social construct and it turns the practices of resistance into a 'tangible and visible gestures' that embody the basic promises of democracy on rights and freedom to choose how to use public spaces in the city.[24] The 'new hijab', in fact, was the female body's 'counter-intuitive' provocation, surprise and stimulation that occurred in the controlled environment of Tehran.[25] It is a counter-intuitive insight because it works at once as a defense against the rigid Islamic codes, and as 'deviance' to alter what Robert Park would call the 'moral order'.[26] To alter the moral order, the urban actor, according to Sennett 1990 – has to perform a number of 'segmented roles'. Here, unlike what is reflected on city, in western literature, as a place that encourages the contradiction of difference, it is hijab that gives women the freedom to segment their roles from 'place to place, activity to activity, taking on the coloring of each scene, as easily as a chameleon changes colors in various surroundings'.[27]

CONCLUSION

In conclusion, it is important to understand when it comes to Islamic urban context, and the aim is to understand the right to use the public space, gender and the study of the visibility and experience of the female urban actor, matters in a quite significant way as women [and other marginalized groups] in these sociopolitical contexts are in a 'competition for public visibility and conquering public space'.[28] If, the attempt of Iranian scholars in reading the sociopolitical context of Tehran is to re-conceptualize and transform the western theories such as public/private into Arbab/Raayat, this study, therefore, suggests to not be confined merely to the two well-established schools of thoughts on the notion of public and private sphere; say Arendt or Habermas. There is another possibility to recognize people's right to the use of public space by accounting their expressivity and minutiae of behavior while in public. The works of anthropologists and sociologists (among them Ervin Goffman, and Richard Sennett) can be considered in this way of thinking as their points of departure are less political, but more cultural than either Arendt or Habermas. For them, the composition of public realm is depended on how people behave in public, which itself takes into account 'the street clothing, customs of greeting, rituals of dining and drinking, ways of avoiding eye contact, the places people crowd together and the places where they keep their distance, when people feel free to talk to strangers and when they do not, the bodily gestures which excite a stranger's sexual interest and the bodily signals which forbid it'.[29] In this sense, cafes, shopping malls, taxis, metros, buses, and even private cars can be counted as a sort of semi-public/semi-private spaces in Tehran where people re-claim and re-invent new codes for their right to the city.

NOTES

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ECOLOGY AND ARCHITECTURE IN BLAKE'S "LONDON"

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"To see the world in a grain of sand, and to see heaven in a wildflower,
hold infinity in the palm of your hands, and eternity in an hour".

William Blake

INRODUCTION

The Romantic poet, William Blake, wrote "London", in 1794 and later on, "The Chimney Sweeper", in 1789, where he laments England's capital city crippled by industry which evidently was manifested as an anti-utopian, polluted milieu with an equally devastated populace. Blake uses perceptively discerning sets of scenarios, to create a bitter denunciation of an ecological oppression looming large on the horizon of London. The City is in the grips of an ecological imbalance, leaving it dismal and disdainful, and its people ecologically confined.

The paper will explore a twofold perspective

Primarily, it will endeavor to reconsider two of William Blake's poems, "London" and "The Chimney Sweeper" and review the correlation between the human and the ecological worlds, in the city of London. On the other hand, it will concisely consider the perspectives of the Literary Ecology, termed as Ecocriticism in the postmodern perception and apply this interdisciplinary approach on the two poems. Together, these aspects will reflect how Blake echoes in them the vision of a futuristic revelation of an untainted and a wholesome environment, in terms of societal, cultural and public perceptions to Urban Design and the Landscape.

The following painting as seen in Fig.1, is by Blake, where he has portrayed Urizen, who was conceptualized by Blake. This character has emerged from one of the many artistic visions of Blake. He often portrayed Urizen as having the tools of an architect, more as such, he is the creator of the world. The painting is known by the name of "Great Architect". This is an affirmation of the fact that Blake was an architect in making, and his goal was to build a modern and idyllic London.

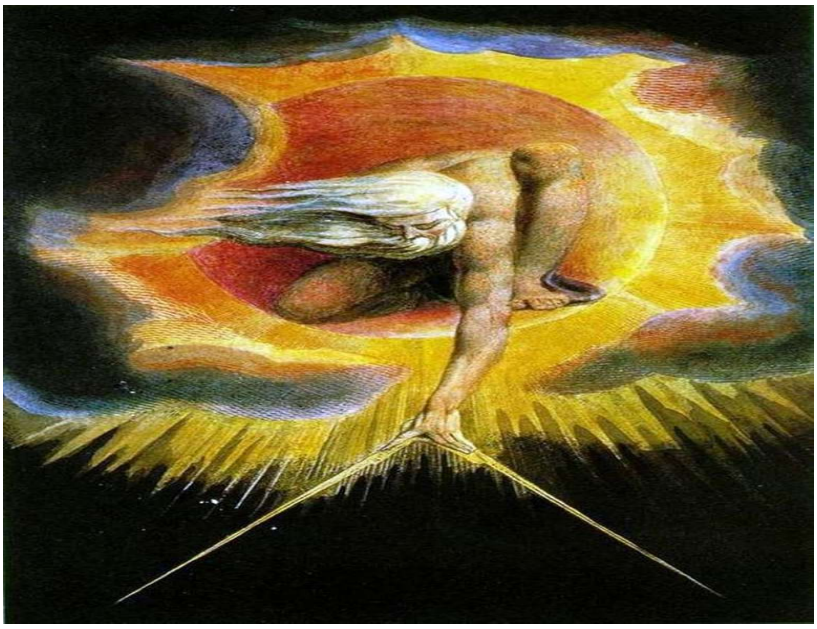

Figure 1 Urizen

As an architect of modern London, Blake portrays the 18th century London fraught with both – natural and man-made calamities

In the poems, "London" and "The Chimney Sweeper", he reveals the architecture, landscape and urbanism that prevailed, was entirely in its drabness and desolation. Blake's irony is very palpable in his decisive vision of a well-developed, pollution free, archetypal city of London, where no frightful and famished Londoner – industrial laborers, women, children or Chimney Sweeper is crying out for the illumination and brilliance of a State-of-the-Art city in his life.

Considering that Ecology in its quintessence, is related to infrastructural design and environmental modelling, in **its** ultimate application, these aspects are endorsed in *The Ecocriticism Reader*, by Glotfelty and Fromm[1], this paper attempts to re-read the two poems by exploring the Ecological perspective Literary Ecology has evolved into what we know as Ecocriticism is the most recent of the reexamined movements that has become popular over the last decades. Ecocriticism is interdisciplinary: it calls for a collaboration between natural scientists, writers, literary critics, historians, anthropologists, architects, and more. It asks us to examine ourselves and the world around us, as we represent, interact with, and construct the environment, both "natural" and manmade *Ecocriticism* is an eclectic term under which embraces a diversity of methodologies and that makes it challenging to define. As Lawrence Buell says, ecocriticism is an "increasingly heterogeneous movement"[2]. But "simply put, ecocriticism is the study of the relationship between literature and the physical environment"[3].

According to the Ecologist, Barry Commoner's first law of ecology, "Everything is connected to everything else," which invariably points to the undeniable fact "that literature does not float above the material world in some aesthetic order, but rather, plays a part in an immensely complex global system, in which energy, matter, and ideas interact"[4]. Literature is basically the blending of an arrangement that happens to be perfectly coordinated between the Writer, the World, the Text, and the Reader. Ecocriticism amplifies and enlarges the concept of "the world" to include the complete Ecosystem & the Environment. At the core of ecocriticism, is "a commitment to environ mentality from whatever critical vantage point."[5] The "challenge" for ecocritics is "keep[ing] one eye on the ways in which 'nature' is always […] culturally constructed, and the other on the fact that nature really

exists"[6]. Hence, Ecocriticism deals not only with the socially constructed categories we create for reality, but with reality itself. As Vernon Gras observes, "Ecology, on the other hand, by its very name, advocates a return to nature. The looming catastrophe that awaits us is due to anthropocentrism. We ignore nature except as a material resource to serve human ends and, as we continue to exploit nature — arguably our most basic relationship — we take on a bogus position with it, harming both nature and ourselves."[7]

How do the Minds of the Ecocritics Work?

Ecocritics promote a return to and re-consideration of nature. According to the Ecocritics, the movement was initiated because we ignored nature except as a material resource to serve human ends. Ecocritics say that we must have a more sincere connection with nature, hence – An ecocritic analyses how the natural world is portrayed in literature: an effective ecocritic should highlight culture's impact on nature, as we will observe in the paper. Ecocritics want us to firstly investigate the tendency to see ourselves in every little creature (to personify our natural world), to tells us about the human condition. Secondly, to analyze how the actual real, scientific facts of nature influence our lives and our literature. Literary scholars cannot be unmindful of the perspective that the major constituents that bond human beliefs and the physical creation, both get affected by each another. Fritjof Capra blends Ecology with what he calls the "web of life". The synthesis is aspiring as It has an exciting potential that encourages us to further dialogue in ecoliteracy.[8]

Ecocriticism is not just another 'ism'

Ecocriticism was officially heralded by the publication of two pivotal works, both published in the mid-1990s: The Ecocriticism Reader, edited by Cheryll Glotfelty & Harold Fromm, and *The Environmental Imagination*, by Lawrence Buell, the Father of Ecocriticism, says, that it is an "increasingly heterogeneous movement". But "simply put, ecocriticism is the study of the relationship between literature and the physical environment" [9]. It has now developed into a significant postmodern trend in Literary Criticism. The Eco-critics take nature as a dominant factor as they consider that our development as a civilization is largely reliant on the forces of nature, which are further, majorly manifested through Art & Literature.

Do's and Don'ts of Ecocriticism

The backgrounds & the environs in Literature are not viewed as pieces that are only – Circumstantial, as in Wordsworth's poem "Daffodils", Contextual, as in Coleridge's "The Ancient Mariner", or as simply utilized for - Ornamentation, Décor and Design as in Byron's "She walks in beauty". Nature is not yet treated as terrifying, in Tooth and Nail, nor is Nature simply an Artistically appealing inclination that refreshes us from the humdrum of an otherwise automated routine, Ecocritics, as Buell states, want us to think of nature as a foremost contributor in literature. It prevails in each part of creation. Nature is not sporadic. To investigate and analyze Nature in Literature, that is Physical and Artistic is the Ecocriticism formula.10

Coming to the two poems, "London" and "The Chimney Sweeper", where Blake expresses his views on the London of the 1790's/1800's: while "London" was published in Songs of Innocence in 1794, is one of the few poems not to have an analogous poem in Songs of Experience. "The Chimney Sweeper" was published in SoI in 1789, and in the SoE in 1794. In the SoI, the poems are optimistic in tone and celebrate love, childhood and nature. In the SoE, the poems offer a deviation, to illustrate the effects of modern life on people and nature. Dangerous Industrial conditions, Child labor, Prostitution

and Poverty are just some of the topics Blake explores. Both poems describe the severe conditions of life in London in the 1800's due to the Industrial Revolution.

The Blakean Warning– that leads to the two poems appear as Ecological Elegies. Blake being a visionary poet, saw unprecedented urban growth as the result of industrialization. As people left the country in search of work at factories, cities grew more rapidly, and more factories were built. In this way, industrialization changed the very landscape of England. Blake wrote this poem to denounce the state of people in the urban centers of his time. He argues, in the poem, that people in the cities, are really critically off in a number of ways with no proximity to nature and by destroying the Environs of natural surroundings. He even hints at river Thames being in dire problem. Such circumstances, he validates, endorses AND warns, has/will cause people to be oppressed. They are, from now on, fundamentally, living in shackles. They have placed themselves in an ordeal, by blundering to destroy the environment for materialistic interests. This will act as a slow poison, & eventually, they are bound to destroy all social & cultural strata to the extent of putting their minds in shackles, trauma. This Ecological disbalance has even led to lowering the morale; Women have been forced to become prostitutes. All in all, life in the cities has degraded the humanity of the people who live in it.

At the very onset, in the poem, "London", we find the personae exploring his surroundings, while walking down a street. He is emphatic about ensuring that we are aware of the fact that he is walking down the chartered street, towards the river Thames. From the very beginning, he raises a wake-up call about the environs; that be it land or river, it is all 'chartered' by Man. The inflexibility and firmness of the surroundings meticulously ensures that everything in the ecology is carefully chartered. Nature is completely taken over by Man, systematized, pre-arranged and controlled by Him, in order to serve Him to His advantage. Man has ensured that ecology is enslaved, and this is the warning, Blake wants to give before it is too late to completely lose the balance of ecology.

In the Six Detriments of Architectural Form

Paul Rodolph mentions that," the first detriment is the environment of the building, its relationship to other buildings and the site."[11] Definitely, walking down the streets of London, Blake's personae is becoming more and more aware of the fact that the buildings around him are choking the purity of ecology, due to being "chartered". He is not enjoying being in close proximity to nature anymore; all he sees around him is a collective feeling of trauma. Blake confirms that it is not just the speaker alone who is so distraught at this sight of ecology, he finds this distress written large on the faces of the people he meets on the way. Further on, the personae impart an inveterate vision of the disconsolate feelings with which the people around him are tormented with.

He gives an account of the fact that all generations – from the infants to the adults, who are in the grip of this sensation of being part of a degenerative ecology. The constrictions on the ecology, set up by Man, have now fettered the minds of everyone and impeded them immensely, in their ability to feel blissful any longer. Absence of a balanced and secure ecology has brought about an all-round angst. Instead, of enjoying the metropolis of London, all that can be heard are cries of anguish, as people feel completely constricted and confined. Blake is undeniably questioning the fact that the degeneration of the minds has been brought about by the degeneration of ecology. By destroying the ecological balance, the society is now set to destroy the mental balance of the people as well. Blake being a visionary is already sounding the apprehension.

A complete absence of Ecology

The scenario in London that is being described, becomes more bleak, barren and desolate, because of the complete absence of any sort of an Ecological ambiances or vibes. The dominating colors are not

the refreshing ones of nature, but the darkness and blackness, brought about by the absence of an ecological equilibrium. Whether it is the church or the palace, the entire scenario is devoid of any natural surroundings. It has been widely accepted that Blake has expressed an acute dissatisfaction at the plight of London on many levels: be it socio-economic, administrative political, or ethical, nevertheless, not many critics have scrutinized the fact that the stifling atmosphere is due to the ecological imbalance that was so profoundly palpable to be perceived by Blake.

Blake draws our attention towards the youthful harlot, which is no other than the ostentatiously emerging industrialization! Industrialization has caused the frail babe like ecology to shed tears of helplessness and to be stifled into silence by the reprimands of the polluted, debased realm of mechanization, prospering all around. The eco-system has been completely derailed. The marriage of industrialization to the motive to win the race to get rich soon at the expense of sacrificing Ecology, has ruined everything. Ecology is the bastard child which is being hushed to remain silent; or be eternally cursed by the imminently impending industrialization. Blake, hence, predicts that the marriage between the Entrepreneurs and their voracity for developing more Industries should be stopped or else, the hapless cries of the now fragile Ecology, will soon become its hearse.

Blake was a nonconformist who associated with some of the leading radical thinkers of his day, such as Thomas Paine and Mary Wollstonecraft. These people, like Blake, believed in free thinking and were not the kind to conform to society's standards. This poem particularly condemns the stringent rules of society. Blake experienced some of this first hand. At one point in his life, he was accused of speaking against the law. The penalty for this was severe, and Blake was distraught over the issue until he was finally acquitted. It is not surprising that he should revile such a strict government. The words of this poem condemn every kind of organized religion and government while it reveals the human heart's longing for freedom.

Figure 2 London

Acute Trauma and Death due to Ecological Imbalance

In Blake's poem, "London", the city presents the microcosm of the World where we go from local to global. As seen in Fig. 2, the emaciated, week London is being led by the young and energetic Ecology. It is a murky, filthy place, we hear and see it in both, the people and places. We can credibly hear harlots, which is the exploited Ecology, cursing Industrialization, for the marriage, or rather, the mismatched marriage of Ecology and the Industrialist. The babies born thereof, are the weak and undernourished Environmentalists crying audibly in the face of a depleting Ecology. A place where eventually, everybody is "marked" by "marks of weakness, marks of woe", are polluted environment, Air, Industrial waste and Noise. Social, Historical, Political woes merge into a series of sights that are

full of disgust and despair, emotions that are seen reflected in the Faces of “Blight”, Minds in “Manacles”. On Ecocritic terms, the Blakean warning is issued again- with these miserable scenarios, of the destruction of the environment, all of London and slowly the Universe will be “plagued” and end up on the “hearse” if not stopped. If wars don’t stop and getting blood on the hands of people, and if the church doesn't stop getting blacker and blacker, polluting the city and universe will crumble into a big mess of poverty, disease, and all sorts of other, metaphorical "manacles.”

“THE CHIMNEY SWEEPER”-INNOCENCE

Figure 3, The Chimney Sweeper

Bondage and Freedom in Ecological terms

The Songs of Innocence, (1789) included The Chimney Sweeper. As seen in Fig.3, Blake blatantly renders a very young chimney sweeper to illuminate the evils of Ecological devastation, due to the brutal Industrialization. The Chimney Sweepers are no other than innocent helpless people, caught in the cruel bondage of Industrialization; life for them is fraught with acute hardships and abuse. The large Industrial houses & trade centers, chimneys in reality, are abusing the Ecology and the Chimney Sweepers, the innocent people are ingratiating disease & death due to the hazards of environmental pollution, suffocation and burns. They now suffer from cancers caused by the soot; blackness has overtaken them, and many have died in Chimneys. Due to this imbalance and impurities caused in Ecology, people have become orphans: the warm, nurturing mother earth—the ecological system is dead; they are sold by the father— the stern figures of authority to cause Industrialization.

The price the Chimney Sweeper has to pay

"The Chimney Sweeper” imagined nature is profoundly different from the natural reality of the Blakean world of Innocence where the imagination's vision becomes a tool of abuse and oppression, Tom Dacre, as a CS represents the Ecology. As in ideal imaginative elaboration, the first hint of natural disaster for the hair on Tom's head, which "curl'd like a lamb’s back" = the dire damage to ecology. Tom, is now completely engulfed in an urban environment, is a part of the natural world **anymore**—the hair like a "lambs back" is cut off almost immediately, severing any connection he may have had to the natural world. The image is one of extreme misery and suffering among the oppressed (Ecology), by the oppressor (Industrialization). Blakean warning intervenes -Tom ends up weeping, so will ecology, if this continues. Shaving off the golden hair embodies the terrible harm that the process of the ecological damage is causing, stripping the Environs of Natural habitat for the sake of a luxurious mechanized lifestyle.

The Heaven of Ecological Balance

Tom mentions a dream where he finds his dead friends, in black coffins. This again is Blake's reminder of the earth engulfed in Industrial waste, in the absence of Ecology. Tom sees an Angel, which are the environmentalists, come to save the Earth and the Humans, from the coffin of contamination, fumes and fog. He is carrying the golden shining key of detoxification. The Angel opened the coffins containing the bodies and set all free from the bondage of coffins, all kinds of contamination, contagion and impurity. They then run down a green ground, wash themselves in the water of a river and play in the sunlight which signifies the return to and celebration of the Ecological balance once again. It is a heavenly feeling. This was really a very delightful moment for these chimney sweepers, ecology, people on earth. Everything is now pure and unpolluted.

The Ultimate Blakean Vision of the Idyllic Ecology: the ideal dream of Blake

The black soot to turn into a Pure Environment, the unpolluted, peaceful world with green valleys, pure air, uncontaminated water, healthy sunshine/environment, no more blackness, the golden key to a heavenly Earth is a sound Ecology. Moreover, Architecture and Literature are closely connected. As David Spur observes, However, since the material of architecture is solid, inanimate matter, it remains a purely external rection of what Hegel calls spirit. On the other hand, it is poetry, and by extension literature in general, that stands opposite to architecture as the "absolute and true art of the spirit": more than any other art, poetry has the capacity to bring before the imagination everything of which the mind is capable of conceiving. Architecture is the first art, but literature is the total art in its pure expression of inner spirit.[12]

This paper fulfills the most modern inclination, that of the Interdisciplinary research.

Literary perspectives are hereby blended into Architecture nuances to align a dual perception of the paradigms deemed important for both the genres. One assists the other in order to focus and highlight the interlinked contributions, that makes the topic more outstanding. The Blakean ideas get a new lease of life, in the postmodern aspect, assisted by the various aspects of Architecture.

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COMPLEXITY AND CONTRADICTION OF URBAN DESIGN AND PASSENGER RAIL RIDERSHIP IN BERLIN, HONG KONG, LONDON, LOS ANGELES AND MEDELLIN

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INTRODUCTION

This paper describes how complexity of station design and passenger rail system increase passenger rail ridership in five cities, Berlin, Hong Kong, London, Los Angeles and Medellin. Contradictions between transport agency aims of reduced environmental impacts and pollution and local environmental declines due to high passenger rail use including lack of green space and trees were also identified.

New and expanding passenger rail systems are promoted worldwide for presumed benefits of reduced environmental impacts of sustainable transport and better public health from the associated walking trips to public transport[1]. Over 200 studies have investigated the effect that density, diversity and design have on transport use[2]. Urban design quality has been shown to improve access and use of passenger rail systems which in turn provides more public transport trips, less auto trips and subsequently more public health benefits from decreased pollution and more associated walking trips.

Urban design of passenger rail station areas was surveyed using a site analysis metric developed from previous examples by William H. Whyte and many others[3]. Statistical analysis was conducted to determine which urban design attributes that correlated with impacted passenger rail ridership. Fifty-four variables from site analysis were analyzed by 111 international passenger rail stations. As complexity of stations increased by offering more rail lines, ridership also increased. A contradiction found across five cities showed that as ridership increased green space decreased. Mixed use hub station architecture also increased ridership. Quality of life aims sustainability and humane pedestrian environments to encourage walking to train stations all depend to a degree of green and open space. This paper concludes from research that transport agencies should anticipate environmental decline and quality of life decreases for pedestrians and bicyclists near high performing train stations. These drawbacks must be managed with urban design for an even better return on ridership, subsequent public health benefits and the transport agencies' own success.

Urban Design and Public Transport

Urban design affects public transport and is in turn shaped by transport[4]. Many cities are attempting to reduce auto use and encourage bicycle use, passenger rail use and walking trips. Density, compact urban forms and pedestrian oriented communities are especially effective for reducing auto

dependency[5]. Transitioning from auto trips to more sustainable modes of travel is the key to environmental benefits[6]. Density is often tied to increased public transport use[7]. Increases in commercial areas, highways and train stations have shown increases in transit use[8].

Urban design that promotes public transport use has many synergies and overlaps with sustainable urban forms. More sustainable urban forms include higher densities, diversity, compactness, mixed uses, renewable energy sources, green space and a network of sustainable transport[9]. Often these urban form attributes also encourage people to use passenger rail rather than private autos[10]. Land use strategies that put people in close proximity with their destinations and provides them with different modes of travel can reduce auto trips and the associated environmental costs, pollution, of auto emissions[11]. Many synergies have been found between urban design that increases walking trips, physical activity and public transport use including mixed land uses, higher densities, aesthetic attributes and street connectivity[12]. Environments that encourage walking, cycling and public transport also discourage auto use. Positive relationships have also been found between housing diversity, dwelling density and proximity to supermarkets with more sustainable modes of travel. The urban design of the built environment has been found to be predictors of physical activity, promoting public health, and of public transport use which is better for the environment than private auto use. A supporting amount of density has been identified many times as integral to public transport ridership[13]. While density is not the only determinant of passenger rail use it does partly explain the discrepancy between population size and passenger rail use in the five cases analyzed in this paper, Berlin, Hong Kong, London, Los Angeles and Medellin. Of course, public transport use has many factors that play a part in its use including economic factors such as car ownership, many cultural factors and macroeconomic factors including location of stations near central business districts. This paper looks at station area urban design complexities as they encourage or discourage passenger rail use and contradictions that undercut the recovery of environmental benefits from passenger rail use.

The research in this paper has investigated the relationship of these and other urban design quality of life factors and their relationship with passenger rail use. Comparative studies across cities with different geographies, cultures and histories of development are difficult however planners do need some universal understanding of the relationship between place and public transport in order to create better cities[14].

METHODS

This paper presents a study of 111 passenger rail station areas from Berlin, Hong Kong, London, Los Angeles and Medellin where place, or urban design quality of the station environment, is statistically compared by ridership or use. Positive and negative correlations between 54 station area urban attributes with higher passenger rail ridership at stations are discussed as well as urban design variables that have an impact or weight on station ridership numbers.

Main phases of research included interviews with planning professionals and planning document analysis for background, collection of passenger rail ridership numbers and management into annual station level entry and exit data and site analysis that mapped station areas with an urban design quality survey. Station urban design elements and quality from the station level site analysis was then analyzed using the IMB Statistical Package for the Social Sciences (SPSS) to perform bivariate Pearson correlations to determine correlations between urban design and passenger rail ridership and a multivariate linear regression to determine which urban design elements or attributes have an impact on passenger rail ridership.

Ridership data was collected from five cities and organized by annual station entries and exits for weekday travel. Los Angeles ridership data is from the Los Angeles Metropolitan County

Transportation Authority for the year 2013. These numbers are calculated from samples because at the time of data collection there were not turn styles at all stations despite having tap card technology. Transfers within the station from one line to another are not included. The entirety of the Los Angeles system was visited, and 35 stations were chosen for site analysis to be tested against passenger rail ridership through statistical analysis. Berlin passenger rail ridership data was obtained from the Verkehrsversbund Berlin-Brandenburg (VBB) for the year 2007 and 18 central Berlin station areas were analyzed from the S-Bahn and U-Bahn systems. Hong Kong ridership data was obtained from the Hong Kong MTR and 15 stations were site analyzed. Passenger rail ridership data from Hong Kong is obtained from Octopus transit cards. London passenger rail data for the Overground and Dockland's Railway (DLR) was obtained from Transport for London and acquired through Oyster card gate collection data. Medellin passenger rail ridership was collected from the Metro de Medellin, collected from turn style reports, for the entire 27 station system.

The site analysis contains six main categories, pedestrian access and travel, environment and comfort, social aspects, surroundings and land use, interaction of travel modes and the built environment composed of 54 different urban design elements or indicators including, barrier free paths, smooth sidewalks, public space visible, people on the street, street level retail, seating, connecting transport mode visibility and more. Variables with identified correlations or impact on passenger rail ridership are discussed in the following analysis.

COMPLEXITY AND INCREASED PASSENGER RAIL RIDERSHIP

These five cities have extremely varied urban environments between each other and within themselves. Berlin's urban design and built context is largely ad-hoc, mixed use and a largely pedestrian scaled street system. The built environment in Hong Kong ranges from an intensely dense urban condition of heavily planned station areas with busy pedestrian skyways around stations to nearby historic areas of narrow roads with restaurants and retail. London has a much larger population than Berlin, yet its built environment is similar to Berlin's. London has much more ridership than Berlin and rail hubs with a spread of economic, social and environmental impacts. Medellin's buildings are similar in size and heights to the buildings of Los Angeles at first glance; however, density is much higher and development in Medellin is funneled along the main central river path while lower income housing stretches up the hills. Berlin and London have by far the most complex systems with many interchanges and connections to other transport modes.

City	Average station annual entries and exits of stations in millions	Number of stations averaged	Public Transport Mode Share Percentage	City Population Millions of people	City Population Density Person per km squared
Hong Kong	63	15	53.8	7.347	6,300
London	23	20	37	8.136	5,100
Medellin	.6	18	29.4	2.46	6,221
Berlin	20	31	26	3.47	3,944
Los Angeles	4	27	5	3.976	2,910

*Figure 1. Compares the public trans**port** mode shares of the case cities as well as population and density.*[1516171819]

Population size alone might suggest that these case cities organized by annual entries and exits at passenger rail stations would follow London, Hong Kong, Los Angeles, Berlin, Medellin order. However, density appears to make a difference with the exception of Medellin's due to a newer and small system focused across a central industrial and employment district. Los Angeles has a similar built environment to the other cities in many places, but Medellin and Berlin have much higher public transport mode shares. Urban design helps explain why London's public transport mode share surpasses Medellin's despite Medellin having a greater density and why Berlin's ridership surpasses the greater populated Los Angeles and approaches London's station entry and exit numbers.

In a statistical analysis of the five cases combined, 111 passenger rail stations tested together by passenger rail ridership was found to positively correlate generally with complexity of the system and urban design quality of the station environment, including the number of rail lines or destinations available, a mixed-use hub type station architecture, as well as the station relationship with other transport mode connections.

From a bivariate Pearson correlation analysis of these cities, several interesting correlations were found between stations or station area attribute with higher passenger rail ridership. The two most prominent correlations with higher passenger rail ridership were the number of rail lines available at a station and a mixed-use hub style of station architecture. Hub stations with retail and rail line options for this paper include two main strategy, those built for the purpose of being a major hub with commercial space, for example the Berlin Hauptbahnhoff, London's Euston station or Los Angeles' Union Station. The less common hub strategy is Los Angeles' 7th Street station that is a major interchange located within a heavily mixed-use central business district. This correlation between interchange stations with many uses expresses the phenomenon that as complexity of the rail system grows so will passenger rail ridership fare recovery[20].

All Cities 111 Stations	Positive Pearson Correlation
Number of rail lines available	.429
Hub station architecture	.345
Connecting stops are convenient	.260
Significant office space nearby	.274
No blank walls	.255
Underground rail	.247
How well transport modes interact	.247
Social aspects	.209

Figure 2. Positive correlations of station characteristics with passenger rail ridership.

CONTRADICTIONS BETWEEN HIGH PASSENGER RAIL RIDERSHIP AND ENVIRONMENT AND COMFORT

High urban design quality surrounding stations generally corresponded with high passenger rail ridership except when including higher ridership performing stations, passenger rail ridership actually had an adverse effect on certain aspects of the urban environment. Individually, higher ridership rail stations in berlin correlated with a decrease in green space, while terminal line stations in London and Los Angeles showed a decline in passenger rail ridership at those stations.

Negative or inverse relationships were found with urban design factors including places of shelter, trees, grass, open or green space and overall environmental comfort. Environment and comfort in these station areas actually suffered as passenger rail ridership went up. Across all cities there was an

inverse correlation between ridership and the environment and comfort, open or green space, trees, places of shelter and grass.

All Cities 111 Stations	Positive Pearson Correlation
Environment and comfort	-.195
Open and green space	-.208
Places of shelter	-.247
Grass	-.248
Plantings and trees	-.254

Figure 3. Negative correlations of station characteristics with passenger rail ridership.

A multivariate regression was performed on these variables that were found to correspond, positively or negatively, as passenger rail ridership increased at these 111 stations. Several urban design and urban quality factors found to impact ridership numbers at the station level were found, including that the number of passenger rail transfers available at a station accounted for nearly 7% and mixed-use station architecture accounted for over 3% of passenger rail ridership at stations within this statistical model. Other aspects of the urban realm including a built area that was not isolated or unembellished, social aspects including other people present and nearby office space all had significant impacts on ridership of approximately positive 1% impact. Again, similarly to the correlation analysis negative relationships between places of shelter and grass exist with higher ridership stations. As ridership increases at a station, grass and places of shelter will actually decrease, due to more space needed for travelers or from wear from so many travelers.

All Cities 111 Stations	Percentage Singular Impact on Variance in the Model
Number of rail transfers available	6.76
Hub station architecture	3.3489
No blanks walls and not an isolated environment	1.61
Social aspects	1.46
Significant office space nearby	1.21
Grass	-1.04
Places of shelter	-3.76

Figure 4. Station area characteristics and their singular impact on passenger rail ridership.

CONCLUSIONS

While there is always more to the story, the impact of urban design and the built environment on travel behavior remains undefined as many searches for causal relationships to promote public transport use. This study explains that complex urban design does make a difference in passenger rail use, success and therefore return of benefits.

Many factors besides urban design and density play a part in travel behavior between these five cities. Los Angeles has similar built environments to the other cities, yet large complex systems along pedestrian friendly urban cores in London and Berlin, driving disincentives such as narrow streets and a congestion car in London and a focused property development strategy in Hong Kong are all ways that the other four cities surpass Los Angeles in passenger rail station entry and exit activity. Even Medellin with their slightly newer than Los Angeles' system and lower population has a much higher

public transport mode share of transit, likely owed to low car ownership. Hong Kong has by far the highest average annual numbers of entries and exits and largest mode share of travel by rail due to the strong transit-oriented development that focuses residential, commercial and office uses above and nearby rail stations in an extremely dense manner. This is made easier for Hong Kong because the government has control over land and is also the largest shareholder of the MTR transport authority.

The urban spread of Los Angeles and lack of driving disincentives combined with a cultural refusal of a large segment of the population to adopt passenger rail use has left Los Angeles with the least used passenger rail system of these five cities. Los Angeles does have walkable streets and significantly mixed areas, usually side by side rather than up, but these slight urban design disadvantages combine with cultural, geographic and policy distances that further disadvantage the Los Angeles County Metropolitan Transportation Authority's efforts to create a more sustainable and sustainably traveled city.

Berlin has a much more used system due to greater density, mixed use and pedestrian oriented urban centres and a long cultural history of using trains for travel. While many people walk in all of these cities, the quality of the urban experience varies. Los Angeles neighborhoods are buoyed by sidewalks, streetlights and trees but the streets are wide and designed for autos. The Los Angeles County Metropolitan Transportation Authority has relied on freeway conditions for many of its passenger rail stations and have an inconsistent property or station development strategy with some station in mixed use transit-oriented developments and others well within residential areas. Furthermore, there is very little in the way of auto ownership or driving disincentives besides congestion from most people driving. These factors in Los Angeles have failed to overcome auto dominance in Los Angeles. However, while Los Angeles may need the most urbanist attention, Los Angeles has the most diverse built environment of these cities and advantages of building, fire safety and the American with Disabilities Act that have synergies and overlays with urban design quality.

Positive correlations found between complexity of passenger rail system and station design with increased passenger rail ridership makes a strong case for stations with multiple rail lines available, intersections, mixed use hub station architecture, convenient connecting stops and ease in the interaction of transport modes for increased passenger rail ridership. Furthermore, these factors have been shown to impact passenger rail ridership within these 111 stations studied the number of rail lines and a mixed-use hub style of station architecture were significant determinants of higher passenger rail ridership of nearly 7% and 3% of passenger rail ridership respectively. Meanwhile, urban quality was also found to positively impact ridership. For example, no blank walls and a non-isolated station environment accounted for nearly 2% of ridership at a station. Other complex aspects of the station area environment that were found to increase passenger rail ridership were positive social aspects at a station and nearby office or employment space.

High ridership stations had a large impact on this statistical model and showed that as ridership increased at a station many factors of the environment and comfort decreased including, open and green space near stations, places of shelter, grass, plantings and trees. A lack of grass and places of shelter even had an impact on higher ridership of approximately 1% to 4% respectively.

For example, Compton station, a slightly above median station of those surveyed in Los Angeles with 2,859,255 annual entries and exits for the year 2013 may benefit from an increase in ridership from additional rail lines of an additional 7%, 200,147 additional entries or exits. By increasing mixed uses and a hub style architecture at the station, an additional 3%, 85,777 entries and exits may be provided. These are the variables' discreet impact and would likely be of a larger impact in combination with each other and other variables or factors at stations. These statistics represent significant additional

numbers of riders for fare returns, environmental benefits of people not driving and catalytic economic benefits for surrounding retail.

While the highest ridership stations did show an inverse relationship with the quality of the urban realm, there were many stations with substantially high ridership that did have high quality urban environments showing that urban design quality is not a necessary loss for high passenger rail ridership. These results also show that transport agencies need to mitigate their externalities on the environment and comfort of high use station areas with landscaping, trees, places of shelter and humane open spaces. Furthermore, complexity factors that correspond to an increase or increase ridership show that a mixed-use station architecture, office or employment space near to stations and easy and convenient mode connections argue that station areas with overlapping uses actually increases ridership as well as being better places to be.

These conclusions offer guidance for how stations should be designed or where new stations should be placed for a greater number of riders, return on fare revenue and environmental benefits. In an era of declining public transport ridership many places, transport agencies need to manage their externalities for their own survival. These adverse effects, counterproductive to transport agencies success, must also be anticipated. Transport agencies must do more to increase the complexity of their station design and station neighborhoods by planning housing, commerce and passenger rail stations in an overlapping manner and in close proximity together. It has become clear that transport agencies may no longer rely only on moving people and goods but must also improve the quality of our destinations.

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SPATIAL ARTISTIC VALUE AND CONTEMPORARY CONSERVATION STRATEGIES OF VERNACULAR TRADITIONAL VILLAGES: A CASE STUDY OF HAIYAN VILLAGE, YUNNAN, CHINA

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INTRODUCTION

Vernacular traditional villages have the significance for historical heritage and civilization of Chinese traditional farming culture.[1] However, they are faded and hollowing gradually due to rapid urbanization toady. This paper takes the last ancient fishing village named Haiyan in the Dianchi Lake Basin of China region as an example to illustrate its cultural development features and artistic value. By summarizing the spatial characteristics of Haiyan Village, this study points out the spatial artistic value of vernacular traditional villages is mainly reflected in three aspects: planning layout, transportation system, and architectural group. In order to solve the development difficulties and disadvantages of vernacular traditional villages in the contemporary social environment, this study proposes a three-level transformation mechanism: cognition, spatial function, and behavior pattern. As a conclusion, it is pointed out that the conservation strategies of vernacular traditional villages in contemporary need focus on the technology update of the function of the tangible level. Meanwhile, it is more important to consider villages' artistic meaning and residents' ideology of the intangible level as the internal driving force for inheriting heritages[2]. From the cultural perspective, considering the strategies of sustainable development of vernacular traditional villages is an effective method that provides a guide for the conservation of contemporary heritages.

Haiyan Village

Haiyan Village is located on the east coast of Dianchi Lake, Chenggong District, Yunnan Province. It was gradually developed from the ancient wharf. Its history can be traced to the period of the ancient Dian Kingdom (about 278-115 BC). The village is surrounded by mountains on three sides and water on one side, which deeply reflects the "Feng-Shui" (namely "风水" in Chinese) concept in the location of Chinese traditional villages. Because of the unique geographical advantages, Haiyan village have been living on fishing since ancient times, while developing old businesses. The entire village is dominated by the Han ethnic, and the architectural type formed by the typical one-seal-style residence (namely "一颗印" in Chinese) in Yunnan.[3] It is an important sample of contemporary research on

vernacular architecture in China during the Ming and Qing Dynasties. The "72 doors" formed along the main road of the village is the largest single vernacular architecture around the Dianchi Lake Region. Due to its development characteristics and unique spatial form, the village is called "the last ancient fishing village of Dianchi". However, affected by the development of modernization, the original function of ancient wharf in Haiyan Village has gradually disappeared, resulting in the disintegration of the original spatial structure, lifestyle and industrial model of the village, [4] and the hollowing and aging of the village which caused by the population loss. Accordingly, the contemporary conservation heritage protection strategies of the village have changed.

THE HISTORICAL DEVELOPMENT AND SPATIAL EVOLUTION OF HAIYAN VILLAGE

Historical development

According to historical records and documents, the history of Chenggong in Yunnan can be traced back to more than 30 million years ago. Chenggong belongs to a typical monsoon climate, which shows the flat terrain and plentiful natural resources, making the region suitable for human habitation. In the 3rd century BC, the general of the Kingdom of Chu who was called Zhuang Mi led military into Yunnan, and established the ancient Dian Kingdom, which was also the beginning of Han culture and Yunnan minority culture. [5] In the Yuan Dynasty (about 1275 BC), Chenggong County was established. Today, Haiyan Village and its surrounding areas have been developed in ancient times with water systems. In addition, many streets or areas with the words "tang"(namely *"塘"* in Chinese) and "pu"(namely *"浦"* in Chinese) in Kunming city are historically prosperous areas with abundant water resources.

Historical heritage

Most of the existing cultural heritages in the village of Haiyan are the remains of the Ming and Qing Dynasties, including the Shilong Temple, the Seventy-two Doors, Xiao Dazhong residence, six residence, and Guan Sheng Palace. Among them, the seventy-two Doors is an important variant of the development of the one-seal-style traditional courtyard house in Yunnan. Its size and layout form the largest compound group of courtyard houses in the Dianchi Lake Basin, which is a traditional civil structure during the Qing Dynasty. There are 5 patios, 80 rooms, and 72 doors in the building group, so it is called "72 doors" (see Figure 1). The building group retains the traditional one-seal-style residence layout in Kunming, and the overall central axis is symmetrical. It is composed of a main house and a cabin, and the shape is regular and square, just like a seal. [6] This architectural style can be changed in form and pattern according to the size of the population and the needs of development, creating unique artistic value, while also adapting to the constraints of climate and terrain.

Figure 1. Seventy-two Doors in Haiyan Village

Evolution of Haiyan village

Haiyan Village initially build a scale in the ancient Dian Kingdom. Due to its unique geographical location, it has become an important land-water wharf of the Dianchi Lake Basin. Therefore, the industrial structure of Haiyan Village, which has been dominated by fishing and trade for a long time, and frequent information exchanges and trade exchanges have brought a prosperous economy and a certain population size to the region. At the same time, as one of the important historical ancient Dian wharfs, it also has the functions of material exchange and entertainment. Until the Republic of China, this kind of industrial structure mainly based on fishing and farming showed a trend of stable development.[7] Most of the existing village forms and spatial scales were preserved in the Ming and Qing dynasties, and the spatial changes of village have taken place since the Republic of China. The entire village has formed a complete spatial system in the long historical development, including all aspects of family life, public services, religious beliefs, economic industry, etc. Therefore, the overall development of Haiyan Village is the result of four cultural coupling effects of farming culture, fishing culture, national culture and Han culture.

THE SPATIAL ARTISTIC VALUE OF HAIYAN

Planning Layout

The layout of the village is based on the traditional "Feng-Shui" (namely "风水" in Chinese) conception, using natural terrain conditions to form a natural pattern surrounded by mountain water and farmland (see Figure 2). Overall, it shows the spatial pattern of storing wind and receiving water. [8] Through this kind of spatial layout, the village can have a panoramic view of the Dianchi Lake and the West Mountain, and at the same time provides favorable conditions for the formation of a complete dock. From the overall view of the village space,[9] reflecting the traditional fishing culture, with the "Feng-Shui" (namely "风水" in Chinese) layout as the guide and the village road as the skeleton, a fish-shaped village image is formed. In addition, the streamline of the whole village runs from the head of the fish through the tail of the fish to the countryside, forming the picture of the fish chase to the dragon gate. It symbolizes that the traditional culture like the root became a tree lively in the Dianchi Lake Basin. Although it is made by people, it is like a natural achievement[10].

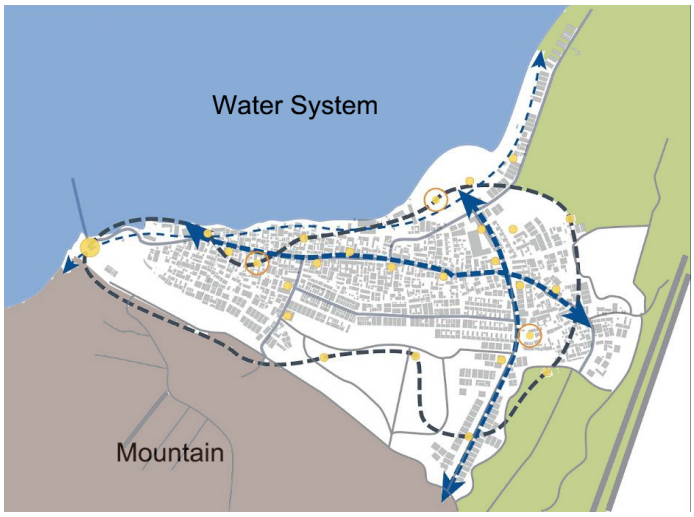

Figure 2. Planning Layout of Haiyan Village

Transportation system

The transportation and water system of Haiyan Village are closely integrated (see Figure 3). The water system is passed through the Dianchi Lake Basin and finally introduced into the farmland and landscape through a complete water system structure to form a complete irrigation system, which not only satisfies daily domestic water consumption, but also Solved the problem of water use for farming. The traffic's form looks like a fish. The main road runs from the head to the tail of the fish and reaches the whole village. The inner streets of the village gradually grow along the main axis to both sides, forming a fish-bone road system. The river runs parallel to the road and passes through the village. Walk in the form of a water living village. The advantage of this structure is that the traffic structure in the area is clear and convenient. The function of laying out public spaces in the village according to the order can form an open and flexible space, and it can greatly meet the public needs of the villagers within a specific range.

Figure 3. Transportation System of Haiyan Village

Architectural group

The internal architectural groups of the village are mainly based on a typical one-seal-style courtyard house. The villagers have gradually developed into a mature group organization structure along the road system in terms of population size, resources, financial resources, and usage needs through the use of terrain and road conditions (see Figure 4 and Figure 5). The architectural group combination pattern takes the road as the skeleton and grows in both directions in terms of the layout of the village, which reflects the observance of the order, central axis and hierarchical systems in traditional Chinese culture[11]. Otherwise, combined with local culture and conforming to the ecological characteristics of the region, a unique arrangement of architectural groups has been formed. The organic nature of the overall structure is mainly reflected in the orderly organization between the buildings and the harmonious relationship between the building and the road with water system, which together form a dynamic and complete group structure model within the village.

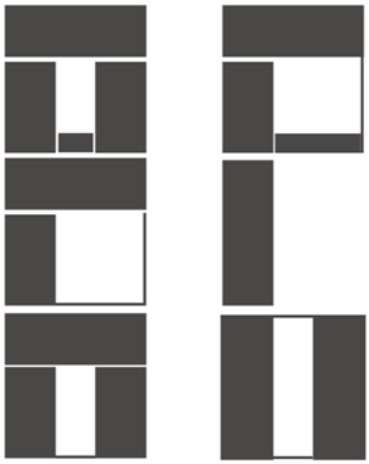

Figure 4. Courtyard Layout Pattern

Figure 5. Architectural Group Context in Village

THREE-LEVEL TRANSFORMATION MECHANISM IN HAIYAN VILLAGE

After the Republic of China, although the village form of Haiyan Village still retains its past form, it has been impacted by modern industry and the internal mechanism has changed. The factors causing its transformation are mainly stimulated by external conditions: First, due to the impact of emerging industries brought about by the industrialization of Kunming, traditional fisheries and trade have been hit, and the original industrial structure has disintegrated. Second, water pollution in Dianchi Lake began in the 1970s and reached a peak in the 1990s. During this period, urbanization around Dianchi Lake began to develop rapidly, and the population increased sharply[12], resulting in including Haiyan Village. The existing fisheries in the area around Yunnan have been greatly impacted, and water pollution has also reduced the quality of life of villagers in the area. Third, since 2003, the Kunming Municipal Government has incorporated Chenggong District into the overall planning of Kunming New City and built a university town in Chenggong. The original agricultural land has gradually been transformed into other functions of construction land.[13] Some land patterns have changed, resulting in the increasingly changing environmental landscape around Yunnan and the lake surface in the Dianchi Lake Basin gradually becoming smaller, which has affected the external environmental structure and internal activity mechanism of ancient villages. Fourth, due to the impact of the industrial structure,

since the beginning of the last century, the population within Haiyan Village, represented by the younger generation, has gradually left out of the ancient village to seek the newly developed opportunities, including studying, working, which results that the village is gradually aging, hollowing.

Cognition

With the disintegration of the original industry and the changes in the spatial pattern, the ideology of the native residents has also changed. The ancient villages are no longer the only gathering place for native residents, especially the out-goers represented by youth. If they can get better development abroad, most of them choose cities or other areas as new ones in their future planning. Additionally, modernization is gradually integrated into the village's space life, and the awareness of native residents is becoming more open. Modern equipment such as TVs, refrigerators, and solar energy are gradually accepted by villagers and become a necessity for contemporary village life, greatly enhancing the original space life. quality.[14] The thinking of villagers is gradually showing the characteristics of extroversion and diversification, and the courage to break the inherent cognition and accept the implantation of new culture and new concepts is a more positive and response to the opportunity brought by modernization.

Spatial Function

Haiyan Village is close to the east bank of Dianchi Lake and has special natural scenery, the natural resources around village provide comfortable and convenient conditions for the development of modern industry and tourism. Under the influence of modernization trend, the original function of the village space has been reconsidered and replaced, and the traditional layout conception of showing a tribute to "respecting and using the order and axis symmetry " provides favorable conditions for the transformation of the space[15]. It turns out that the practical functions that only need to satisfy basic residence and public activities are gradually transformed into a composite function integrating residence, commerce, tourism, and education[16] (see Figure 6). Moreover, the important reason for this phenomenon is that the loss of population leads to the vacancy of the original house space. In order to achieve the proper space utilization, the original vacant space can be properly transformed to improve the utilization rate of the building space. And when the villagers' tangible life needs are realized, they will inevitably turn to new spiritual pursuits, so new requirements will be put forward for the village's spatial function.

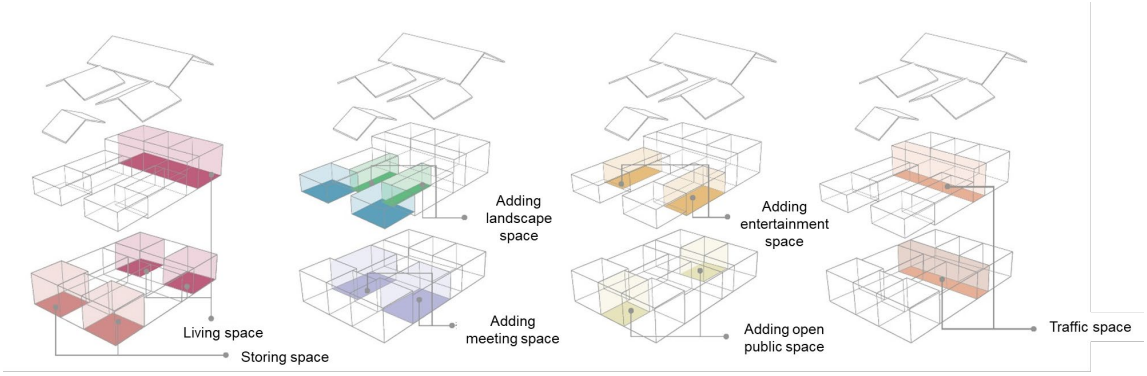

Figure 6. The Transformation of One-seal-style Residence

Behavior Pattern

Due to the transformation of the spatial function of the village, the behavior patterns have become increasingly diversified. The original production and living behaviors gradually integrated into new behavior patterns such as tourism, entertainment and education. The integration of the behavior of foreign participants has an intangible impact on the spatial behavior of the original residents, breaking the continuity of the original behavior, which is also an important reason for the new public space demand in the village. Moreover, the changes in behavior patterns will eventually be fed back to the village space. [17]On the one hand, it catalyzes the new possibilities of the village space. On the other hand, it will also lead to changes in the village's spatial environment. It is the structure of long-term behavioral activities.

CONCLUSION AND RETHINK

Today, the total population of Haiyan Village is 2,546, more than half of which is going out, and the left populations are elderly and children, resulting in a lack of labor in the village. The development of new industries in villages under the guidance of new concepts has become a problem that cannot be ignored. At the same time, the aging of villages is becoming more and more serious, and it is difficult to ptpmote the work of villagers' self-construction and independent entrepreneurship. In terms of cultural inheritance, due to the low level of education of the traditional villagers and the long-term closed and self-sufficient living conditions in the history, a large number of historical residence civilization and unique cultures have been lost, leading to the omissions in cultural inheritance and historical records. At village space aspect, due to the long-term weakness of public facilities in the village and the pollution of the Dianchi Lake, the quality of life of residents has been reduced, and the sufficient and hierarchy of the natural environment have been weakened, creating a heavy wall for the development of new industries.

Considering the difficulties of today's Haiyan village in contemporary development, combining its' character the conservation strategy of the village can be carried out from four aspects: Firstly, consider the high-tech and low-energy method[18] to restore the village's space texture[19], including the historical architecture, street[20], water system, remarkable structure and heritage site[21], etc. Secondly, the activation and renewal of the function and structure of traditional houses to adapt the needs of contemporary production and life, and stimulate the extroversion of functions, increase the contemporary adaptability and vitality of the village. Thirdly, the use of the surrounding natural ecological environment to establish nature reserves to reduce the impact of human settlements on the natural environment[22]. Use natural resources to develop diversified ecological products including new planting, fishery, and export, etc. Fourth, guide the villagers to build their own businesses, use the traditional cultural and spiritual motivation as the driving force[23], use the existing industries and traditional handicrafts to attract new labor, and promote the positive effects of population.

However, the development of Haiyan Village is difficult, and the constraints of external conditions have also brought difficulties to the implementation of contemporary conservation strategies. In fact, it is worth noting that at the level of development opportunities, on the one hand, the unique environmental advantages and historical heritage of Haiyan Village have gradually become an important cultural and artistic value in the consciousness of the villagers[24]. On the other hand, the development of tourism in the surrounding Yunnan area has the advantage. The introduction of the crowd has created extremely favorable conditions, and it has also attracted other people in society. Therefore, the development and conservation of traditional villages should be based on the specific environment and humanities, coordinate the contradiction between native residents and contemporary development, consider advantages, and guide the enthusiasm of villagers to participate in the

protection process, while taking opportunities which can improve or solve environmental pollution and other problems[25]. In terms of realizing the sustainable development of ancient villages and the existence of history, planning and design ideas are only one level, and can only solve the spatial contradictions on the tangible and aspect. Therefore, it is important to comprehensively consider the influencing factors of the ancient village in the contemporary development of the growing contradictions, incorporate social problems and dilemmas into the planning category[26], solve complex problems in multiple dimensions, and turn dilemmas into opportunities.

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THE CITY AND COMPLEXITY. DON'T BE AFRAID OF CROWDED PLACES

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INTRODUCTION

Within the growing city, "crowded places" are no longer the congregation of "irrational" crowds, rather the places of everyday life where individuals gather and move in big numbers favourited by more freedom and advanced mobility. A quick internet research on "crowded places," however, releases only negative connotations: anxiety, terrorism, crowding phobias. How do users of "crowded places," such as travellers, visitors, shoppers perceive these environments? How do we transform a negative feeling into a positive one and develop a professional expertise in designing these very critical environments? During the last fifty years phenomena such as gentrification, urbanisation, privatisation[1] have transformed our cities and lives[2]. Traditional public spaces have been substituted by airports, shopping malls, open plazas, while a pervasive "mall-style"[3] has come to determine our social life. In recognising that design can affect people's experience and behaviour, architects and urban designers are called to respond to these environments concerned with the crowd's forces and the loss of individual identity and sense of place[4]. Experts in correlated disciplines such as engineering, landscaping, environmental psychology, cognitive science and others are fundamental to decrease anxiety and facilitate placemaking and wellbeing at the different scales of the project. Successful examples of "crowded places" such as the Japanese Gardens in Osaka, on the roof of the "Namba Parks" Shopping Centre (2003), are oases where people can contemplate the landscape; the same sense of place can be perceived on the sculptural sloping roofs of the Oslo Opera House (2015), in the high-lit space of Singapore Changi Airport (1981-2019) or, finally, through the immersive sensory experiences under the glass dome of the Jewel Changi (2019) or on the regenerated tracks of the High Line (2009-2019), New York.

The research is about a renovated perception of crowded places through the contribution of professional expertise in enabling physical and emotional wellbeing in these environments by adopting a multidisciplinary approach and a placemaking strategy in the design of future "crowded places."

Crowded Places

"Crowded places" are a recent invention which is, therefore, little documented compared to the extensive literature on crowds and crowding[5]. A quick online search leads us to nineteenth-century origins which considered the crowd as pathological and irrational[6]; if we go further, we find out that government anti-terrorism websites have adopted the definition of "crowded places" to describe those

physical places where crowds are present and vulnerable to "unexpected, unpredictable and potentially catastrophic" events[7]. In describing their goal, Australian National Security, for example, states: "The objective of this strategy is to protect the lives of people working in, using, and visiting crowded places by making these places more resilient to terrorism"[8]. This conception, in reality, hides principles of the "Psychology of the crowd" of the nineteenth century which considered the crowd as emotional and suggestible to be directed and predominated[9] and of which George Simmel in his classic 1903 essay "The Metropolis and Mental Life" is concerned about the human experience of the metropolis as a crowded and potentially hostile place. However, the British firm Secure Futures, on behalf of UK Home Security, gave a different definition: "Crowded places are everywhere we go. They are the high street and the shopping centre, the station platform and the bus queue, the busy cinema and the sold-out venue. They are the public spaces we use"[10]. Today, in fact, if we exclude political contexts of vindication, the "crowded place" is a constant presence in everyday life, which is equivalent to our social life.[11] Its meaning should therefore be reconsidered and updated to a more positive model, even if the fact remains that, in a high social density, individuals cannot find solace since their freedom is threatened by invasive control forces that the condition "crowded" of quasi-public spaces imposes. The practice of architectural design should therefore deal with the "bodily connection" of the individual with architecture[12],, promoting a sensory experience generated by the accessibility of space and the integration with nature enabling wellbeing and a sense of place in people[13]. To this end, I will analyse two of the examples mentioned previously, the High Line in New York and the Jewel Changi in Singapore.

High Line, New York

In the heart of Manhattan, High Line Park is a public - but privately managed - park that sits on an abandoned historic elevated railroad[14]. Here, people can move freely through gardens and open spaces, meet people or just sit back and enjoy the unique city skyline. Taking its cue from La Promenade Plantée (1993) in Paris, the project by Diller Scofidio + Renfro, winner of the 2003 competition, promotes the reuse of disused tracks combined with agriculture and architecture in a codified system called "agri-tecture"[15]. Through a design of alternating areas of green and concrete that, in different proportions, create a landscape without paths, the public is invited to try a sensory experience by wandering randomly. This flexibility offers individuals the opportunity to isolate themselves in quiet spaces or be involved in planned or spontaneous social or artistic events. Since it is not allowed to ride a bicycle or play ball, but only to walk, sit and meet, the High Line represents a new idea of the park, because it promotes meeting, interaction, and exchange that are at the basis of placemaking.

Jewel Changi, Singapore

Singapore's Jewel Changi is a nature-themed shopping and entertainment complex located on the landside of Changi Airport, which means it is open and accessible to both travellers and locals. Based on the repeatedly updated 1976 airport Masterplan, Moshe Safdie's project promotes sustainability and immersive nature through the Forest Valley, a giant terraced garden with over 200 different species of trees and plants, centred around the spectacular Rain Vortex, the highest indoor waterfall in the world. The waterfall, which in peak conditions flows at more than 10,000 gallons per minute, keeps the high temperature cool and, at the same time, collects a significant amount of rainwater for reuse inside and throughout the building. In addition to supporting the life of a wide range of gardens with adequate sunlight, the Jewel has moved to the next level of human commitment and wellbeing by achieving a high level of comfort for individuals. As Moshe Safdie says about his project "Landscape is not an add-on feature, or an optional embellishment, but rather a fundamental component of space.

Its deployment creates the opportunity for a new kind of spatial experience"[16]. Offering a green paradise and sensory experience inside, Jewel Changi provides entertainment spaces, quiet seating areas for families and visitors, and creates a sense of place.

PLACEMAKING

"We have a moral responsibility to create physical places that facilitate civic engagement and community interaction." (Whyte, 1981)

As a discipline, Placemaking originated in the pivotal work of Jane Jacobs (1961) and urban planner William H. Whyte (1970s), whose direct observations were used as the basis for drafting New York's open space regulations. The sense of place they described concerned the daily life of people in the places where they lived, worked and fed by the communities on the basis of which Whyte founded the SLP-Street Life Project[17], in 1971. Today, Whyte's SLP legacy survives in the PPS (Projects for Public Spaces). By interviewing and talking to people, Whyte was able to transfer awareness of the quality of public space and how this can influence social behaviour. His ideas and methods have grown all over the world. In the preface of his book "The Social Life of Small Urban Spaces" (1980) he states "our studies of New York's most crowded street led to a request to do a similar study in Tokyo"[18]. Today, in the UK, according to Wight (2012), in creating or redoing a place, "placemaking" involves the body, mind and spirit of the occupants and ultimately allows for a sense of integration and wellbeing. In a positive and ongoing participatory process, involving the individual agency and the collective community, placemaking constructs context through an integrated and trans-disciplinary / trans-professional effort.[19]

Place

Place is what shapes the personality and identity of the individual. Depending on the condition, the nature of a place conveys "sense of place" or "no place" by making people feel belonging or alienated in a place.[20] The sense of place is the emotion that develops from comfort, satisfaction and attachment to a given area. At the same time, each individual brings to the place a series of personal factors (history, values, memories, etc.) that influence their perception or meaning of the place. The more this meaning is shared by others, the greater the complexity of the social field[21] and the greater its social clarity or "imaginability"[22]. By introducing a paradigm shift in people's perception of civic space and its potential to catalyse other changes, the High Line has become a popular place for New Yorkers. Speaking with Dezeen, Elizabeth Diller says: "It's a new park idea, a place where there's nothing to do. (…) But you can sit and you can walk. And that's such a discovery for New York"[23]. This idea of contemplating and feel part of the place that belongs to the people is very true for Moshe Safdie, too. By integrating the two functions of the urban space, market and park, the Jewel is not simply a giant garden or a market, but it resuscitates the idea of the civic space "Jewel presents a new building prototype for connecting the city and the airport. Like an ancient Greek agorà, it aligns social and commercial values to create an animated public-realm destination"[24].

Wellbeing

Since its origins, wellbeing has been the product of the creation of a place: one generates the other on both scales, individual and collective. But while in the medieval community-oriented society, the measure of wellbeing was shared, today community measures of wellbeing exist as aggregates of individual measures.[25] Even if we were to refer to the ancient model to seek "integration" and "solidarity", today we could not repress our individuality and our "I" especially if we are talking about wellbeing.[26] According to Moshe Safdie, placing man at the centre of a microcosm that dialogues and

integrates with nature, it generates wellbeing, comfort and quality of life to be transferred to others. "Architecture constructs our living environment and should always be unique, in keeping with the site and the users, contributing something useful to the community"[27].

INTEGRATED MULTIDISCIPLINARY DESIGN

"Could an integral placemaking with wellbeing inspire one another and generate a synergy for planning, policy and design?" (Wight, 2012)

A multidisciplinary design approach is when different design disciplines are used together or, when design goes beyond its boundaries to other fields to improve the way it solves a problem. Technology and data sharing are two examples that have changed the way we work and live. Technology alone has provided us with powerful capabilities to reach critical information and support, while data can tell us a lot about us. Given the general perception that placemaking is a collective action on common concerns in a concerted way, the integrated multidisciplinary and multi-stakeholder approach is implicit in a placemaking project[28]. If planning, its politics and related design work in synergy with the creation of places, they can ultimately generate wellbeing.[29]

Policy

If planning and design can be conceptualized as an integral process of placemaking, they will play a more fundamental role in addressing public policy and supporting wellbeing. The High Line is perhaps the most famous case of public / private urban regeneration in the world that has seen the number of visitors grow exponentially in ten years. In 2000, the then mayor Giuliani signed a decree to tear down the elevated line abandoned since 1980 to make way for private speculation. The revolt of the citizens of the area has managed to overturn the fate of the demolition already begun in 1991. With only an initial public fund allocated in 2003 and an open competition, the total investment of 115m$ has led to a surrounding urban development of 5b$. Given the profit, the operation was accused of privatisation and gentrification. At the same time through this project, the alternative of which would have been other speculation, the city was given a new public space with free access to anyone, albeit with time restrictions.

Planning

Since planning, in its best purposes, has always been guided by an impulse to do "good" and to generate wellbeing in all contexts, if in synergy with good policy and expressed by good design, placemaking will generate wellbeing. The High Line is the result of the collaboration between Diller Scofidio + Renfro, Buro Happold Engineering, and the landscape architecture firms of James Corner Field Operations and Piet Oudolf. The project covers a 7.2-acre park. Completed phase 1 in 2009, phase 2 in 2011, phase 3 in 2014 and phase 4 (the Spur) in 2019, this busy venue has seen the number of visitors grow from 400,000 in 2009 to 7,000,000 in 2018. For Diller, the integrated multidisciplinary design experience was significant. "I think the most exciting thing is this new agency for the architect - being able to put a programme on the table and to really raise consciousness about it, find the support, and work with a whole group of people to enact change. To not only inherit. I mean that's the problem – architects inherit bad, old ideas from programming of the past. You try to change something with design, but to fundamentally question our institutions, that's really important to do"[30].

Design

"Informed by an integral approach, wellbeing maybe conceptualised as a product of placemaking, engaging body, mind and spirit" (Wight 2012)

Jewel Changi is an example of advanced design that takes a multidisciplinary approach. Almost with a Renaissance spirit, Moshe Safdie brought together a consortium of knowledge between engineers, landscape architects, interior designers and artists, thinking in a biotechnological key. Owned by the Government of Singapore and operated by Changi Airport Group Pte Ltd, Jewel Changi was built on the former Terminal 1 car park and cost approximately $ 1.25 billion. As tall as ten floors of a building, the nearly column-free glass dome structure covering an area of 3.85 hectares is made up of a series of grid cells, actually filters that balance the outdoor climate with the inner one and make the existence of a forest possible. “But we couldn't have done it 10 years ago, because the technology that makes it possible today is at the pinnacle of advances in computer-aided manufacturing (Schwitter, Buro Happold, 2019) Thanks to its sophisticated technology, Safdie’s design team, among many, Buro Happold Engineering, PWP Landscape Architecture, ICN Design and local architect RSP Architects Planners & Engineers, was also helped by the “open source” software that was instrumental in improving the way collaborations were distributed, creating ultimately a design community.

In the table below, the key design principles extracted from the two analysed examples have been reported aiming to become a trace for future design of renewed “crowded places”. By dividing them into the categories that distinguish the components of the human being, body, mind and spirit, my data show that although in the two examples there is less attention to the local daily life of the places studied by Whyte (1980), today much more emphasis is given to the psychological dimension.

Categories	High Line	Jewel	Placemaking Key Elements
Physical Dimension (Body)	Context-Specific/ Culture and Traditions	Context-Specific/ Culture and Traditions	Contextuality/ Specific to The Site/Culture and Traditions
	Public Accessibility/ Function Before Form/ Resources	Public Accessibility/ Function Before Form/ Resources	Public Accessibility/ Function Before Form/ Resources
	Easy to Maintain/ Flexible/Adaptable	Difficult to Maintain/ Flexible/Adaptable	Structured/Lifespan (Maintainable) Flexibility/ Adaptability
	Physical Comfort, Human Scaled/ Safe	Physical Comfort, Human Scaled/ Safe	Physical Comfort, Human Scaled/ Safe
Social – Economic Dimension (Mind)	Sociable/Inclusive/ Participatory	Sociable/Inclusive/ Participatory	Opportunities for Social Interaction And Gathering/ Participation
	Art Work/ Sense of Identity	Choreographic/ Visionary	Choreographic / Art Work/ Visionary/ Identity
	Park/ Intense (Condition for Urban Complexity)	Park –Commercial-Transportation	Trans-Disciplinary/ Intense (Condition for Urban Complexity)
	Changing / Reuse Value + Market Viral Effect	New + Market Viral Effect	Transformative / Dynamics/ Value Creation
Environmental/ Psychological Dimension (Spirit)	Focused on Destinations (Open Cones of Vision)	Comprehensible, Focused on Destinations (Open Cones of Vision)	Movement/ Destination
	Engaging Sight, Smell, Hearing, Touch/ Experience	Engaging All Senses/ Enacting Perception Experience	Sensory/ Acting on Brain
	Sustainable/Connected	Sustainable/Connected	Sustainable/Connected
	Engaging	Immersive	Immersed in Nature

Figure 1. *Placemaking Key-principles extracted from the two case studies.*

Movement, the fourth component

Walking over the long concrete planks that taper to gradually form a green, combed carpet rather than along paths between the greenery and the restored tracks of the old railroad line in New York or climbing the forest terraces rather than walking along the elevated pathways below the Changi's glass dome, space, light and nature are able to interact with the sensory system of individuals, generating physical comfort and psychological wellbeing. By adopting a sensory design that, through materiality and infinite views on the horizon, affects the body and the brain, the architects of the two crowded places move visitors within an experience that combines Architecture with Nature by placing the individual at the centre. But the component of the dynamic space that most stimulates the sensory

experience that these spaces make us do is movement: the floating space and continuous changes of perspective release sensations of balance, gravity and stability, as well as sensations of control, freedom, and not least of "publicness" of the space.

CONCLUDING REMARKS

In this article I talked about wellbeing and a sense of place generated through the contribution of professional skills and a sensory design of crowded places by adopting a multidisciplinary approach and a placemaking strategy. From the two examples analysed - the High Line of New York and Jewel Changi of Singapore - the key design principles were extracted that could constitute a blueprint for the development of a realistic set of procedures. Within the complexity of the urban phenomenon, introducing an interdisciplinary approach to understanding the design of urban spaces and a strategy of placemaking, the indications for further research, in fact, should lead to a codified set of rules of a "sensorial design" based on immersive natural environments and centred on the scale of the individual. My data has shown that the architecture, space and immersive nature of crowded places are capable of generating wellbeing and, although privatised, a sense of quasi-public place. To this end, involving people in open and accessible privatised spaces by intentionally generating sensations and feelings in people can be a genuine practice. In addition to the good memories and the state of wellbeing, the sense of place comes from the familiarity with which we will move there the next time we go, or to another similar crowded place.

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UNDERSTANDING THE COMPLEXITY OF URBAN PUBLIC LIFE IN PRIVATELY-OWNED PUBLIC SPACES IN CHINA: THREE CASE STUDIES IN SHANGHAI

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INTRODUCTION

Privately-owned public spaces, or POPS, are publicly accessible but owned by private or quasi-private agencies and designed and managed for seeking profit and serving paying customers rather than the general public. They are, therefore, the mixture of public meaning and private control. In the Western literature, the public-private mixed nature of POPS and its socio-spatial consequences have drawn great scholarly attention.

On the one hand, there is a large body of influential work which argues that POPS are places that constrain the spontaneity and dynamics of everyday urban life, and only planned uses (mainly consumption activities) are allowed to occur in those spaces. Most notably among this body of work is Walter Benjamin's book *The Arcades Project*. Drawing on his observations of urban life in retail arcades, a prototype of POPS occurred in the nineteenth century's Paris, Benjamin claims that those spaces make consumers, replacing citizens, become 'the public'. In other words, Benjamin believes the emergence of POPS will lead to de-politicisation and commercialisation of urban public life in the modern city. In his well-known book *The Fall of Public Man* published in 1977, to take another example, Richard Sennett, drawing on observations in American cities, argues that POPS around department stores are 'dead public spaces'. More recently, in 1992, Michael Sorkin influentially claims that the rise POPS in shopping malls will lead to 'the end of public space' in the city. On the other hand, there is a small group of scholars such as Langstraat and Van Melik try to challenge Sorkin's claim about the 'end of public space'.

When it comes to China, studies on the rise of POPS and their consequences in this particular context can hardly be found in the existing literature. However, China certainly deserves more analysis. This is not only because China is now arguably the country which has the largest number of POPS, but also because it is experiencing a new form of urbanism which is meaningfully different from the Western ones. How does the Chinese urbanism affect the management and use of POPS? Under the new form of urbanism, what is the public life like in Chinese POPS? Are the spontaneity and dynamics of everyday urban life also constrained in Chinese POPS? Answers to those questions have not been made clear yet in the existing literature.

Aiming at closing this gap, the paper presents the authors' first-hand observations in three privately-owned public spaces in Shanghai, a costal Chinse city which has one of the largest numbers of this

kind of space in the country. Drawing on empirical evidence collected through direct and participate observations, the paper exams the socio-spatial consequences of the rise of POPS in China. Case studies show that, in Shanghai, POPS are not simply what Sennett describes 'dead public spaces'. Therefore, instead of calling all POPS as 'dead public spaces', the paper argues that POPS in Shanghai can be classified into three different categories and urban life in Chinese POPS is dynamic and shows great complexity.

In the rest of the paper, we first briefly introduce the social and political-economic background of the emergence and fast growth of POPS in China over the past fourth years or so. After that, the paper presents and analyses the urban public life we observed in three different POPS in Shanghai. Following that, the last section of the paper discusses how the observed realities in China challenge Western theories and summaries key findings and arguments of the paper.

THE RISE OF POPS IN CHINA

Since 1979, China has been undergoing an epic economic and urban transformation. During the period of 1949 when the People's Republic of China was founded and 1979, under Mao Zedong's regime, China was preoccupied by both the communist ideological determination to eliminate private ownership and the socialist mandate to establish a centrally planned economic system. under the system, all land in China was either state owned in the city or collectively owned assets in the countryside, and the state-owned urban land, at that time, was not allowed to be traded or subjected to any form of market transactions. As a result, all urban functions in commerce, finance and services were suppressed and private ownership of urban public spaces did not exist in China during Mao Zedong's era.

In 1978, Deng Xiaoping, a neoliberalism advocator who believed passionately in the need to promote China's economic growth through material incentives no matter whether they are communist or have capitalist characteristics, became the leader of the ruling party of China. In 1979, soon after he came to power, Deng shifted China's official political ideology from communism and 'centrally planned economy' to what David Harvey describes as 'a particular kind of market economy that increasingly incorporates neoliberal elements interdigitated with authoritarian centralised control'. In a shorter term, Le-Yin Zhang describes the particular kind of market economy in China as 'market socialism'. When it comes to the management of land resource, a key feature of China's new market economy is that, although all urban land is still state owned, the use rights of urban land are now allowed to be transferred to private developers to carry out commercial developments. In 1987, on an experimental basis, the first long-term lease of land uses rights for commercial development in China was introduced in the Special Economic Zone of Shenzhen, a coastal city in China. On this basis, in 1988, an amendment was made to the Constitution to separate the ownership and use rights of urban land. Then, in 1990, the State Council implemented a series of regulations which officially made clear how long and in what ways the use rights of urban land can be leased out to private developers for commercial uses. On this basis, the long-term lease of urban land use rights policy was expanded from Shenzhen to the rest of China in 1992. This marks the establishment of urban land market in China.

The establishment of urban land market not merely legitimises the privatisation of public spaces, but more importantly, it sets the stage for private developers to participate in building, developing and managing urban spaces in Chinese cities. On this basis, in the 1990s, China established a tax-sharing system between the central and local states and gradually dissolved its communist legacy of a state-run allocation system of both jobs and housing. Those institutional reforms significantly expanded the demand of commercial land. According to official data, the ratio of industrial land in the central urban area of Shanghai shrank dramatically from 75.84 percent to 31.88 percent during 1998 and 2005, and

most of those industrial land was transformed to land for commercial uses. The rapid expansion of commercial land is a result of the boom of the real estate market which attracts growing amounts of capital investments from the private sector. During 1995 and 2003, private investment in real estate development in China tripled from 314.9 billion yuan to 1015.4 billion yuan. As vast amounts of private investment have been pouring into the construction and management of Chinese cities, Chinese urban spaces have been increasingly privatised since the beginning of the new millennium. By 2014, China already has half of the newly built privately-owned public spaces such as shopping malls in the world[1]. And those spaces are growing at an annual speed of 17.8 per cent in recent years[2]. China, as a result, is now where the largest number of privately-owned public spaces exist and are growing at the fastest speed in the world. Then, how do those spaces affect Chinese cities? What is public life like in those privately owned spaces? In his book *Pseudo-Public Spaces in Chinese Shopping Malls*, Yiming Wang has drawn our attention to the dialectical and dynamic roles privately-owned public spaces play in China's urban public life. However, Wang does not specify what roles privately-owned public spaces exactly play. This paper will take Wang's earlier work one step further. According to what urban public life can be observed in the space, we classify POPS in Chinese cities into three different types. The three kinds of POPS and urban public life in them which show a high degree of complexity are exemplified and discussed in detail below.

THREE KINDS OF POPS IN SHANGHAI

Fieldwork was carried out in Shanghai. According to our direct observations in different privately-owned public spaces in the city, how the spaces are designed and in what way (or by what schemes) they are managed and controlled by their owners, to a large extent, determine how people socially engage with the spaces and, therefore, determine what public life can occur in those spaces. Based on different public life observed in those spaces, we classify POPS in Shanghai into the following three categories.

'Dead' public space

According to Richard Sennett, 'we exist in two realms, the private on the one hand, and the public on the other'. Public spaces in the city is supposed to serve as the physical form of the public realm. However, as a result of the rise of neoliberalism which encourages growing numbers of private capitalists to invest, build and manage the urban public realm, the number of public spaces that have been privatised is rising dramatically in recent decades. This trend destroys the 'public realm' and increasingly blurred the boundaries between the two different realms. As a result, Sennett argues, privately-owned public spaces become places in where public life is 'more intense and less sociable'. This leads to 'disappearance of any real interaction between buyer and seller'. Privately-owned public spaces, therefore, no longer play the role as the public realm where social interactions between people should happen. For this reason, Sennett argues privately-owned public spaces such as shopping centres as 'dead public space'[2].

Although Sennett's work is based on his observations of American cities in the 1970s, what he describes can also be seen in today's China. The Bund Finance Centre, or BFC, provides a good example of what Sennett calls 'dead public space' in Chinese cities. The BFC is an office-commercial complex. It occupies two urban blocks. At the centre of the northern block, the BFC provides a rectangle square as an open space for the city. This privately-owned square is approximately 2,700 square meters in size. The BFC centre, as its name indicates, is very close to (just across the road from) the Bund, one of the most, if not the most, famous tourist attractions in Shanghai. The Bund attracts over 400,000 visitors every single day[3]. However, closely located to the Bund does not result

in the POPS in BFC becomes a busy public space. Surprisingly, during our multiple visits to the BFC, there were very few tourists appeared in the square in BFC. The square is surrounded by five high-rise office buildings, which results in it cannot be seen from the main street. As a result of being separated from the surrounding urban areas, the dominant users of the square are not the general public, but only two specific groups of people. The first kind of users are people who work in the offices of the BFC. The second group of users is shoppers who come to the high-end shopping space in BFC. Apparently, spontaneous social activities and interactions are very unlikely to happen between those two social groups.

Meanwhile, in terms of the physical design of the square, the centre of the square is occupied by a large-scale fountain (see Figure 1). Meanwhile, no seating place for free uses is provided in the space. As a result, the design does not support people's stay in the space. What is more, tight social control schemes are plainly visible in the space. There are always one to two private security guards wearing bright vests patrolling in the middle of the square. Any spontaneous activities occur in the space, such as playing with water in the fountain, will be immediately stopped by the security guards. For those reasons, the design and management of the POPS does not support public social life to happen. The space, as a result, does not show key characteristics a public realm in the city is supposed to have (such as supporting interaction of different social groups, provide physical space for spontaneous urban life, etc,). In this sense, we would argue, in the BFC, the open space's role as part of the public realm is 'dead'.

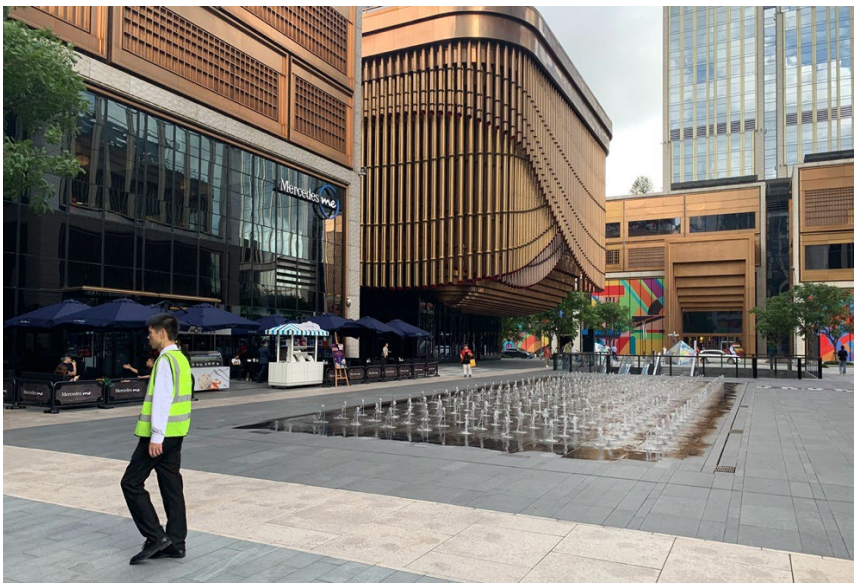

Figure 1. POPS in BFC, spontaneous social activities are not allowed to happen in the space. The space's role as part of the public realm is 'dead' (photo by Yiming Wang)

Pseudo-public space

In our fieldwork, we identified another kind of POPS in Shanghai. Unlike 'dead public spaces' which tend to isolate themselves from the whole urban context and show no interest in making themselves look like welcoming places for the general public, this kind of POPS, by contrast, is trying to make themselves look like authentic public places that welcome the general public to come and carry out their ordinary day-to-day social activities in the space. To attract the public, those POPS are planned and designed in a way that resembles real urban public realms such as urban pedestrian streets and open plazas. Street-trees, streetlights and urban furniture are all placed and design in those spaces in the form that is very similar with those in the urban streets (see Figure 2). However, looking like

public streets and squares does not make them real ones. They are still under the control of private agencies whose main purpose of managing the space is to serve the needs of the property owner and fee-paying customers rather than the public in general. The social activities occurred in those spaces, therefore, are intentionally created by the private owner to promote profitability of the space. Uses and users are also filtered in those spaces, just in a covered-up and more subtle way. In this sense, those spaces are fake public places, or in Kim Dovey's words, 'pseudo-public spaces'.

Xintiandi is one of those pseudo-public spaces in Shanghai. Like what we have seen in the case of BFC, tight social control schemes are heavily applied in the POPS in Xintiandi. The only difference is that, in Xintiandi, all the social control instruments, such as security cameras and security guards, are decorated and intentionally covered-up to made them very subtly visible or even not evident at all in the space. However, if undesirable activities happen or undesirable social groups (such as beggars) occur in the space, they will be immediately stopped and excluded from the space by private security guards. As a result, during our fieldwork, genuine spontaneous social activities, such as political debates and square dancing, were not observed in Xintiandi. Instead, almost all social activities and interactions observed in Xintiandi are those can form a 'good' public order and atmosphere which are helpful for attracting more consumers and stimulating more consumptions activities.

Figure 2. Xintiandi, a POPS tries to make itself looks and feels like an ordinary public pedestrian block in the city (photo by Yiming Wang)

Functional public space

Apart from 'dead' public spaces in where free and spontaneous urban public life are deliberately excluded and pseudo-public spaces in where only consumption activities rather than authentic everyday urban public life are allowed to happen, we observed a few other privately-owned public spaces in where people's public activities are being treated in quite different ways and, as a result, the characteristics of public life in those spaces appear significant differences. Sun Moon Light Centre, or SML Centre, is one of those spaces. SML Centre is in the spatial form of a multi-story mall sitting on and directly connected with a subway station. As a result, to gather and distribute the large amount of people coming out from the subway station, SML Centre provides a large-scale open plaza in the middle of the block on which it sits. The plaza is enclosed by the shopping mall which opens up at four different points (see Figure 3). Those four opening points connect the enclosed plaza to four urban streets surround the block. As a result of organising space in this way, unless they want to shop

and enter the shopping mall from its basement floors, passengers who get off the subway at SML Centre station have to go to the enclosed plaza first after they leave the underground subway station. Then, after reaching the plaza, they can leave the space by going through one of the four opening points.

As can be seen from above descriptions, the enclosed plaza, namely a POPS in SML Centre, serves as a distribution centre or a hub connecting the pedestrian traffic between the subway station and its surrounding urban areas. As a result, this space, in terms of its physical form, is highly open to the public. It is very well connected to the overall movement network of its surrounding urban areas. And, when it comes to the management of the space, no particular social groups are deliberately excluded from using the space. Anyone who takes the subway or walks in the surrounding urban streets can easily enter this privately owned plaza. However, the physical openness to the general public, well connection with the whole urban context, and loose social control combine do not result in the occurrence of rich urban public social activities in the POPS in SML Centre. During our multiple visits to the plaza, we saw people keep coming and leaving the space without stay. As Gehl and Whyte remind us, the precondition for active urban social life to happen is that people can comfortably stay in the space for a while. As people do not stay long in the space, very few social activities and interactions between people were observed in the plaza in SML Centre. In the city, POPS like the plaza in SML Centre, as a result, plays a major functional role, rather than social role. We, for this reason, classify those POPS as functional public spaces which are designed and used mainly to meet functional needs of the city, rather than to provide places for everyday public life to happen.

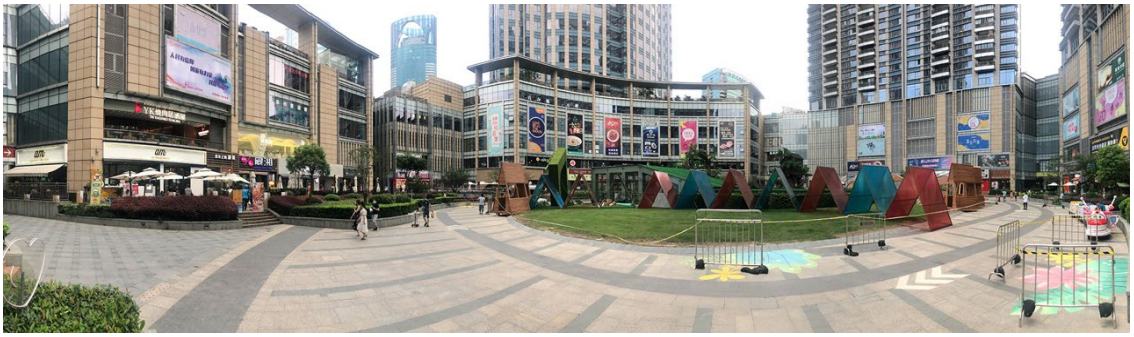

Figure 3. The POPS enclosed by the shopping mall of SML Centre. It does not serve for social interactions but for the function of connecting pedestrian movement networks (photo by Yiming Wang)

CONCLUSION: THE COMPLEXITY OF URBAN PUBLIC LIFE IN CHINESE POPS

The paper has reviewed the key social and political-economic forces behind the emergence and rapid growth of privately-owned public spaces in China since the 1980s, analysed how the new kind of public spaces affect Chinese cities, and discussed what public life is like in those privately-owned spaces. Based on how the space serves the public and how the public engage with space, privately-owned public spaces in Shanghai can be classified into three categories, namely ‘dead’ public space, pseudo-public space and functional public space. Urban public life observed in the three kinds of POPS are significantly different. In ‘dead’ public space, free and spontaneous social activities are deliberately excluded and, as a result, it is very rarely, if ever, seen that people conducting their everyday urban public life in this kind of POPS; In pseudo-public space, although it seems that a large number of urban social activities and interactions appear in those spaces, all of those activities are high-end consumption activities rather than authentic grassroot urban life; And as for functional public spaces, this kind of POPS mainly serves for the city’s functional needs and, although does not

deliberately exclude public activities, usually does not provide desirable environment and conditions for daily urban life to happen.

The above findings challenge the arguments of some influential Western urban scholars including Walter Benjamin, Richard Sennett and Michael Sorkin who simply claim that the privatisation of the urban public realm will lead to 'the end of public spaces' and see all privatised public spaces as 'dead public spaces' which have monolithic characteristics. Drawing on the observed reality in Shanghai, the paper argues that urban public life occurs in different POPS is not monolithic. Instead, as POPS are designed, managed and used for different purposes, the characteristics of public life occurs in POPS, as a result, vary dramatically. In response to the complexity of public life in POPS, in policy terms, more flexible and diverse policies need to be made to deal with the diverse characteristics and limits of different POPS, rather than treat all POPS as the same.

ACKNOWLEDGEMENTS

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NOTES

[1] "Commercial Real Estate Development Grew Fast in the First Four Months of This Year, Differentiation May Become Central to the Competition," XinhuaNet, accessed June 18, 2015, http://news.xinhuanet.com/house/sjz/2015-05-19/c_1115325712.htm.

[2] Knight Frank, *Research Report on the Development Trends and Success Factors of Commercial Complexes* (Shanghai: Knight Frank Real Estate Report, 2014), 5.

[3] "400 Thousands People Visit the Bund Everyday," Xinhua News, accessed June 19, 2020, http://www.sh.xinhuanet.com/2019-08/30/c_138350178.htm.

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BEYOND DIVERSITY: STRATEGIES FOR URBAN/SUBURBAN INTEGRATION IN THE UNITED STATES

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INTRODUCTION

Richard Rothstein's research has shown us that during World War II and directly afterward there were opportunities to build new integrated cities in the United States, as they doubled or even quadrupled in population thanks to the need for workers in industrial production, first towards the war effort, and later to fill an increased demand for consumer goods after the war. Instead, efforts were made by the Federal Housing Commission to keep white families and African American families segregated. Specifically, the African American families were forced to remain in housing that was meant to be only temporary, and white families were given low-rate mortgages towards ownership in the suburbs.
Much effort has been invested in recent years on the triad diversity, equity, and inclusion, but it's time to go further and aim for integration. By unraveling where we went wrong in post-WWII housing, we can articulate both the political and the architectural issues that were relevant then and that will be relevant in the future. Specifically, there needs to be a fair distribution of financing and for that, government regulations would necessarily be involved, as they were in mid-twentieth century.

THE STORIES OF FRANK STEVENSON, ROBERT MEREDAY, AND THE SUBURBANIZATION OF AMERICA

Affordable and amenable housing, access to education, and receiving adequate wages for work done forms the stable tri-podded base on which individuals and families can build a life. But Richard Rothstein in his 2017 book *The Color of Law* follows the life stories of low-income African American men and women who worked hard to better their lives and the lives of their families but were still unable to have access that their white counterparts were given outright. Two stories in particular, one about Frank Stevenson and one about Robert Mereday, are instructive in understanding how intricately systems of segregation are wrapped around every aspect of an African American's life. As difficult as it was to integrate schools after the historic Supreme Court decision in 1954, integrating housing takes decades rather than years, and the sharp focus that history gives us will hopefully instruct us about how to proceed. Additionally, the lack of housing integration has caused setbacks in school integration, and many of our schools today remain as segregated as ever.
Frank Stevenson moved to Richmond, California from rural Louisiana to join the WWII manufacturing efforts and ended up working his way through increasingly skilled positions at a Ford

plant, both during WWII and after the factory went to commercial production once the war ended. Ford initially did not want to hire African Americans, but still lacking workers and afraid to lose the war contract the plant had with the government, they hired African Americans like Frank Stevenson.
In the factory, white workers and African American workers (and also women), worked side by side. Finding a place to live was another matter. Temporary housing was initially built for both white and black workers, but the white families eventually obtained low interest loans to purchase single family suburban houses, in neighborhoods in which an African American like Frank Stevenson was not permitted to move into, because of what we now know were deterrents at the federal and local level.
The push to send American families to the suburbs has its own story. After the Russian revolution of 1917, President Woodrow Wilson feared that such a revolution could occur in the US if the American families living close together in apartment buildings got talking and came to the same conclusion to revolt as their Russian counterparts had done. The idea was for middle class families to embrace capitalism through ownership, but campaigns encouraging white families to "own your own home" did little to increase the flight to suburbia because it was prohibitively expensive. It was only after President Roosevelt's New Deal programs that affordable single-family houses became available. But probably the biggest boost came from the construction activity after WWII in developments like Levittown in New York, where a young white family could move into a two-bedroom house for $8,000. By then the government had yielded construction of housing to private industry, but still decided who lived whereby not guaranteeing loans for new homes unless the developer agreed they would not be sold to African Americans.
Robert Mereday had successfully built a construction materials company in Long Island and supplied materials and labor towards the building of the Levittown houses, knowing full well that those houses were off-limits to him (his nephew tried to purchase a house there, to no avail). So, where did these African American families go? They were forced to live in neighborhoods that were crowded, poorly built, and expensive. Because the federal government did not guarantee loans for single family homes that were sold to African Americans, those that did want to own a home had to pay exorbitant prices to the developer, and sometimes the punishing installment purchasing contracts made it possible for African American families to lose all that they had payed towards the house if they missed a single payment.

HOUSING/EDUCATION/EMPLOYMENT

The segregation project carried out in concert by federal, state, and local governments worked all too well. Initially, in the early decades of the twentieth century, this effort was guided by the erroneous belief that anything less than homogeneous communities would result in racial conflict. But instead, the segregation of neighborhoods by race has resulted in the intolerance and fear of the philosophical "other." Developers claimed and white suburban residents believed there was a negative effect on property values from black families moving into white neighborhoods, something that is particularly perverse considering that the handful of pioneering black families moving into white suburbia tended to be of a higher education and income level than the white residents of the middle-class suburb where they relocated. The black families also paid a lot more for their suburban houses--those few African American families that could afford it were willing to pay it because there were simply very few middle-class suburban neighborhoods available to African American families.
Eventually, towards the mid-twentieth century, speculators employed "blockbusting" methods to scam monies out of unsuspecting homeowners (similarly predatory was the subprime mortgage scandal of 2008, when banks were roping low-income families into mortgages fully expecting that they would default). The blockbusting scam went something like this: developers would hire African Americans

to walk baby carriages through the white suburban neighborhood and to knock on doors asking if any houses were for sale. Then the white families would be approached about African American families moving in, were told that the value of their home would diminish and were bamboozled into selling their homes to the developer at a price below market. The developers would then sell the housing stock to African American families at exorbitant prices because the federal government hadn't built or financed sufficient housing units that were available to them, not even for those that were returning veterans. Most housing built in the twentieth century was designated for white families only, either by including a clause in the deed that the house could not be sold to a "non-white," or later, by zoning designations made by local governments.

Later, in the 1960s, the small amount of housing that was available to African Americans was sometimes razed in the spirit of urban renewal, and those families living there had to be relocated elsewhere. One such relocation was the low-income neighborhood in St. Louis situated where the St. Louis Arch is now. The residents were relocated from their downtown location to Ferguson, still within the metropolitan area of St. Louis but far from the city center—Ferguson continues to be a site of difficult racial relations as attested to by recent events. The somewhat cavalier way in which throughout the twentieth century African American families were placed in ghetto living conditions or displaced for urban renewal or highways, offered no help towards owning a home and building equity, and left them with poor access to quality education and fair-pay employment.

Recent history has fared better as regards to the inclusion of African American families in the suburbs. Douglas Massey has documented the phenomenon of the Fair Share Housing effort in suburban New Jersey.[1] By law, every community in the state of New Jersey needs to provide their "fair share" of affordable housing. Because New Jersey has pricey real estate, what is considered "affordable" is quite high, so residents' salaries range widely, from $10,000 to $80,000. Because the developments are low density and distributed within affluent communities, the affordable housing residents benefit from amenities such as parks and good roads that the collective resources can provide from a mixed-income community. Apartment buildings, formerly prohibited in suburban developments as an underhanded way to keep low-income residents out of middle class suburbs, are going up near affluent neighborhoods, sometimes providing rental units above commercial properties—a sign of the suburbs becoming increasingly urban.

But the challenges continue. As I'm getting ready to submit this paper, President Trump announces that he had rolled back fair housing policies put in place by the Obama administration and asked the suburbanites to "enjoy their freedom." Rolling back fair housing policies means perpetuating the twentieth century federal government efforts to keep African American families away from the housing equity suburbia provided for white families.[2]

REGIONAL APPROACHES FOR VOUCHERS AND INCLUSIONARY HOUSING

The suboptimal housing situation for African Americans in the United States stems from segregation efforts over the course of decades, and to undo the damage there are currently two strategies being employed in New York City and other regions of the country: inclusionary housing,[3] and Section 8 vouchers.[4] Inclusionary housing is a strategy offered to developers building new housing stock. If they offer a certain percentage of units at a reduced price to families fitting within a certain income bracket, the private developers are able to build a higher density of units and stand to make a larger profit. Section 8 vouchers make it possible for low-income families to seek rental units in a neighborhood with a range of incomes. This is how poorer families are able to gain access to better funded resources like parks and libraries supporter by the higher tax brackets in their neighborhood. Placing poor families in a neighborhood that has a lower percentage of families below the poverty line is what

makes it possible to break the poverty cycle. Because so many policies in the twentieth century gave African American families less housing equity than white families, any solution now must necessarily take into account both racial and socio-economic concerns.

In both of these strategies, inclusive housing and Section 8 vouchers, city boundaries diminish effectiveness. For example, the voucher may not be sufficient to find housing in the competitive real estate market of New York City, and this may force the family to end up in communities with a high poverty rate. For this reason, Rothstein makes a recommendation that also makes sense for the future of urban and non-urban areas alike: change the regulatory boundaries from "cities" that are limited to urban environments to "metropolitan areas" that can include both urban and suburban areas. Already in New York City, increased awareness of the role of water in both ecological efforts and resilience planning for floods lead to the making of a coalition that unites the harbors of New York and New Jersey under one organization, the Waterfront Alliance.[5] The 700 miles long coastline does not care about political boundaries between the state of New York and the state of New Jersey; similarly, we could establish certain "flows" between the urban neighborhoods in New York City and the suburban dwellings in adjacent New Jersey. There is potentially an opportunity to bring equity to the unfair housing practices that greatly affected African American families post-WWII. The income and social advancement opportunities that were made available to white families and that were denied to black families, led to a disparity in the financial and social position of subsequent generations. The children and grandchildren of those white parents that moved into the newly built American suburbs received equity-accruing houses from their parents and, because unlike black families their housing was subsidized and their jobs unionized, they had resources to spend on their children, who then had access to education and job training.

The estimated portion of New York City's African Americans is 15%, so Rothstein suggests that a +/- 10% margin to evaluate the homogeneity/heterogeneity of a neighborhood: if the population were 5% African American it would be too low; if it reached 25%, it would be too high. The segregation efforts embedded in the programs under President Roosevelt's New Deal and through the withholding of federal funding after WWII had been justified by their intent to keep the racial make-up of each neighborhood as it was. In reality the federal programs ended up segregating neighborhoods that could have been integrated when the African American work force was mobilized to Ford plants and other work sites during mid-century war production.

A similar urban-suburban flow exists in immigrant groups, as researched by the scholar Mónica Alvarez, and outlined in her paper about Galician immigration.[6] Alvarez argues that the women in particular play an important role in giving their children access to higher education, and that this catapults the second and third generations into advantageous social and economic conditions. Part of their success, I would argue, is this immigrant group's ability to tap into urban resources and work toward ownership in single family suburbs, something that brings equity and financial security to the family unit. But as Rothstein also argues, this and other Hispanic immigrant groups only have socio-economic obstacles, whereas African Americans are in a situation made by federal, state, and local regulations over the course of the twentieth century.

Whether we talk of remediation, as Rothstein prefers, or reparations,[7] as many have in opinion pieces and interviews, in particular after the Black Lives Matter demonstrations that are taking place across multiple cities as I write this paper, if we are able to "solve" this problem, it will require a collective sense of civic responsibility. In other words, a fair distribution of resources means giving something up for the benefit of the collective.

The third leg of the housing + income + education tripod necessary for a family to thrive must be considered mutually dependent on housing integration; successful integration in schools depends on successful integration in housing and vice versa. In New York City there has been great grassroots opposition to charter schools, those public/private hybrids that can cherry pick their families, leaving the public schools overburdened by a higher ratio of students that need additional care or support.[8] The argument against charter schools is that if those families and their allocated share of public funds had stayed in public school, they would have shared the school's resources with kids that needed more attention than their own, but the collective would have benefited from the arrangement. We have to believe that this resource sharing of public schools, that learning is made equitable for all, but not necessarily equal if some students need more attention than others, ultimately leads to a stronger, better society for all, including those students that learn empathy and altruism when they recognize that some of their classmates started at a disadvantage and need more help.

We have seen this model of equity above equality work around other issues concerning our living environments. In the United States and other parts of the world, accessibility legislation has provided wider aisles, roomier bathrooms, and dedicated parking spaces, something that people like to complain about, particularly if those wheelchair logo parking spaces remain empty after the rest of the lot is full. I like to rebuke those complains by arguing that those accommodations are not made for a certain percentage of the population that happens to need the accessibility concessions, but rather, for the possibility of *anyone of us* being in this position and still be able to live our lives with comfort and dignity.

In housing, income, and education too, if one of us lacks the conditions necessary to thrive, *we all* lack it. The COVID-19 pandemic in 2020 has cast a strange global/local pall over our domestic environments. We are isolated in various forms of quarantines and both biologically aware and intellectually connected to the rest of the world. This may just be as great a time as any to consider housing equity, together with access to education and income fairness, in radical ways.

The effects of twentieth century policies are so profound that any efforts today to integrate housing, and therefore schools, must involve carefully designed programs that address the racial, social and economic issues in holistic ways. One example of a successful effort to break the poverty cycle by integrating families into more socio-economically diverse neighborhoods is a project in the city of Baltimore.[9] Through this program, former public housing families are given counseling services regarding life within a heterogeneous neighborhood, they are taught life skills that enable them to remain in their new housing arrangements. These life skills include things like maintaining appliances and making friends with neighbors. To people that grew up and with sufficient resources, these quotidian know-hows are instinctive, but for a family with the learned helplessness that comes from living in ghetto conditions, a support system like the Baltimore example can make the difference between education and employment opportunities and a vicious cycle of poverty.

CONCLUSION

A few years ago, I showed "Bubble" to a seminar of graduate students studying architecture. This 2005 film by Steven Soderbergh depicts workers at a doll factory in the American Midwest who appear to have ambitions for a life that their factory jobs have not yet provided. During a scene at a fast-food restaurant one student forgot they were watching a fiction and blurted out "They are splurging on breakfast? Why not eat at home and save for a car, a house?' A conversation ensued about how when people get a little bit of money but have no prospects of their life changing, they'll spend it on immediate comfort, because what's the point of going without the little pleasures if the obstacles seem insurmountable. The nuanced and gentle support that the counselors in the Baltimore

project provided to families moving out of the cycle of poverty into integrated neighborhoods will not alone make up for the damage that was done to the American social fabric by aggressively segregating African Americans in the twentieth century, but it's certainly a step towards remediation.

Just being cognizant of how it was that housing became so segregated in the United States will make a difference in how we go about integration in the future. Housing segregation was not simply something that "just happened" as a result of private purchases and buyers' preferences. Perhaps a proper revision of the history lessons that our school children, our future citizens learn about American housing history would set up subsequent generations to do better than the current one. Rothstein has argued that the concerted effort between federal, state, and local governments to segregate housing was unconstitutional. Even before the Fair Housing Act was passed in 1968, the initial Reconstruction Act of 1867 (a whole century earlier!) had already made provisions for the integration of the newly freed slaves, and some African Americans even held government posts. Two steps forward, one step back—Jim Crow laws put an end to the Reconstruction's efforts, and it wasn't until the Martin Luther King era of the 1960s that major strides were once again made for civil rights. Judging by the Black Lives Matter protest activity outside my Brooklyn window over the past few weeks, we might just be entering a new era of equity and justice. We hope.

NOTES

[1] Douglas Massey, *Climbing Mount Laurel: The Struggle for Affordable Housing and Social Mobility in an American Suburb* (Princeton, NJ: Princeton University Press, 2013).
[2] Matthew Choi, "Trump boasts of pushing low-income housing out of suburbs," *Politico*, July 29, 2020. https://www.politico.com/news/2020/07/29/trump-housing-policy-low-income-suburbs-386414 [accessed July 30, 2020]
[3] See Inclusionary Housing Program in the New York City webpage: https://www1.nyc.gov/site/planning/zoning/districts-tools/inclusionary-housing.page [accessed July 30, 2020]
[4] See Section 8 Voucher Program in the New York City webpage: https://www.hud.gov/topics/housing_choice_voucher_program_section_8 [accessed July 30, 2020]
[5] David Chen, "In New York, drawing flood plans is a 'game of inches,'" *New York Times*, January 7, 2018. https://www.nytimes.com/2018/01/07/nyregion/new-york-city-flood-maps-fema.html [accessed July 30, 2020]
[6] Mónica Alvarez, "Between Two Shores: Galician Immigration to New York, Morriña, and Transnational Identities" (Cambridge, MA: Instituto Cervantes, 2020).
[7] Ta-Nehisi Coats, "The Case for Reparations: An Intellectual Autopsy," *The Atlantic*, May 22, 2014. https://www.theatlantic.com/business/archive/2014/05/the-case-for-reparations-an-intellectual-autopsy/371125/
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INTERSECTING MOBILITIES: *A DESIGN PROPOSITION* – LEARNING FROM DIFFERENCE IN AN UNEVEN AND COMPLEX PUBLIC SPHERE

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INTRODUCTION

The demographic complexity of many contemporary cities is a consequence of migration under heterogeneous circumstances. Ranging from economic migration to humanitarian reasons, its populations reflect uneven levels of skills, education and increased linguistic and cultural diversity. Limited studies have explored if and how architecture and urban design can respond to the socially uneven and culturally complex public sphere that is often a consequence of this multiplicity.

In the current political climate, neutralizing difference and exclusionary practices are normalized; an approach that also manifests in the way the built environment is designed and managed; discouraging participation and symbolically signifying who is welcome and who is not.[1] This undermines the agency and autonomy of certain groups and can contribute to an increasingly divisive society.

Intersecting Mobilities: Footscray, is a speculative design for a transportation hub that considers the provocation, 'how do we design for/in/with difference?'

INTERSECTING MOBILITIES: A DESIGN PROPOSITION

This creative work sits within a broader scholarly research project which considers the expanded role transportation hubs can play in broadening the conceptual understanding of the public sphere as one that is diverse and complex.

Conceptually, the transport hub is considered a point of intersection in journeys of differing spatial and temporal scales: the inter-suburban commute and of migration that spans across continental distances. As such, the proposal is considered across multiple sites following a migratory path, beginning in the Pettah district in Colombo, Sri Lanka, to the Footscray train station in Melbourne. We follow a set of socio-spatial markers originating in a laneway in Pettah – an intensely diverse commercial district of Colombo, as they arrive, survive and thrive in a new setting. Through these markers, the project draws on the tactical ways in which marginalised communities use informality and mobility to navigate a public sphere in which they lack social, cultural and economic tenure. This paper argues that these tactics can be innovatively adopted in contemporary cities and public space design to accommodate minorities in a more socially equitable public sphere.

Multiple Contexts

Pettah

Pettah is a district in Colombo, Sri Lanka with colonial origins. Initially set up as a neighbourhood by people of Portuguese and Dutch heritage away from the Fort area which was the seat of administrative power during British rule, it evolved as a tight urban grid, characterised by a contiguous built fabric connected by narrow public verandahs and interiors ventilated by private courtyards. Embedded in its physical genealogy lie colonial premises and racialised policies that have accumulated to frame a contemporary condition of marginal and informal temporalities. It has been impacted by a recent history of forced evictions, the removal of informal settlements and militarised urban management producing an environment of social inequity.

A fine-grained analysis[2] of Pettah reveals a set of socio-spatial markers activated and performed across time.

Now more like a bazaar catering to a variety of retail businesses, the street grid defines precincts based on the nature of the good sold. I identified *a graded spatial sequence between the public and the private,* accommodating multiple scales of commerce, goods and services, catering to different socio-economic levels (figure 1). The formal shop spaces sell higher end goods, while the informal sellers who occupy the steps and niches of existing shop facades sell complementary but cheaper goods. Even within the shops, the higher end goods are kept higher in shop levels, progressively getting cheaper as it nears street level (figure 2). Casual conversations with sellers reveal that importers sell excess stock to the informal street sellers who then attempt to sell these off for a small profit. The street sellers often borrow money in the morning from lenders and try to pay back by the end of the day. They position themselves in proximity to the formal shops to borrow or intercept their client base.

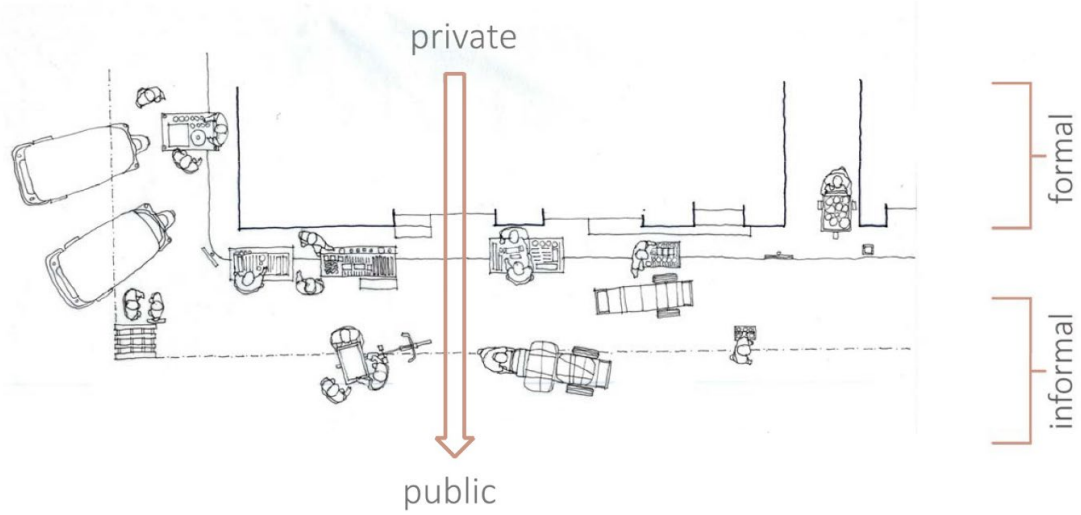

Figure 1. Graded spatial sequence between private and public. Source Kelum Palipane and Pulina Ponnamperuma

Figure 2. Pettah, formal shop spaces sell higher end goods. Source: Kelum Palipane

Ephemeral/temporal use of space supported by props – Observations across time of the laneway showed that in the morning, the streets are devoid of the numerous temporary stalls that normally line the streets (figure 3). Instead, early each morning, goods are unloaded from small vehicles while small scale infrastructure pieces that act as display stands are brought in from adjacent shops and arcades where they have been stored overnight. They're not merely microinfrastructure that are used for the display of goods but act to define boundaries and territories. For example, a wooden pallet extends the boundary of the footpath forming a new edge to the street expanding the footpath and thereby the usable space for the sellers (D in figure 4). At the end of the day this supporting infrastructure is dismantled and stacked where possible, in façade niches and sometimes in the shops, while others are taken away.

Figure 3. Early morning, temporary display stalls are yet to be assembled. Source: Kelum Palipane

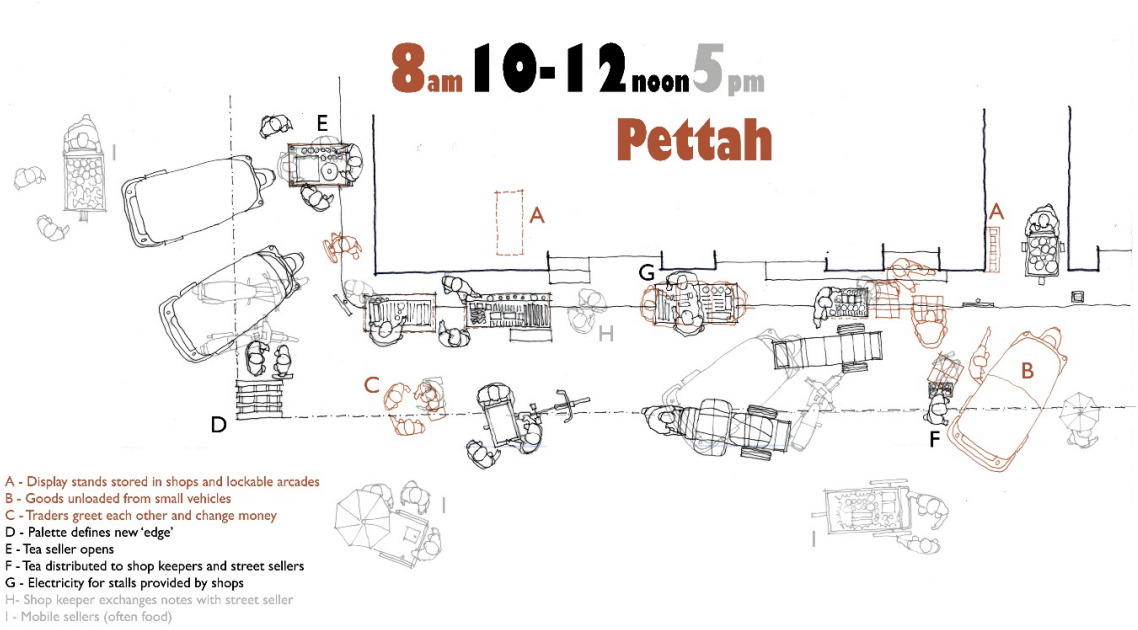

Figure 4. Source: Kelum Palipane and Pulina Ponnamperuma

Networked dependencies supported by the builtscape. There is agency of users and a self-negotiation of territory seen here based on culturally anchored notions of obligation and reciprocity. Sellers assist each other in setting up infrastructure, dismantling at the end of the day and often rush in to protect goods from rain with plastic sheets when needed. As mentioned previously, some sellers store goods and temporary infrastructure in the adjacent shops and wait for the shopkeepers to arrive to gain access to them. They in turn help the shopkeepers open the roller doors and set up the shops. Traders greet each other in the morning and exchange bank notes. It was observed that sometimes electricity is provided by shops to the street vendors (figure 5). A sense of comraderie is cultivated here that transcends socio-economic and ethnic backgrounds.

Figure 5. Networked dependencies supported by the builtscape. Source: Kelum Palipane

Multiple layers of mobility were observed in the streets (figure 6). In addition to the permanent shops and temporary stalls discussed in the previous examples, there are also wholly mobile sellers who use

essentially what are glass boxes on push bikes or hand-pushed carts for high manoeuvrability through the narrow and often congested streets. They usually sell perishable goods such as pickles, chickpeas, snacks, fruits that need to be prepared daily. These mobile sellers play an important role in servicing not only the passing public but the shopkeepers and temporary sellers as well. For example, lunch packets and tea in a small caddy are delivered to shop staff with empty glasses collected and taken back to be washed and re-used (E and F in figure 4). These mobile vendors respond to fluctuating urban rhythms and the shifting demographics of the space across time such as the influx of school children and office workers, as well as the changing weather conditions.

Figure 6. Multiple layers of mobility. Tea stall (right). Source: Kelum Palipane

Footscray

Footscray is an inner Melbourne suburb of Victoria, Australia. It has had a long history as a meeting place, initially for indigenous communities including the Wurundjeri people of Melbourne, and subsequently because of its proximity to the CBD and connection to public transport systems, for waves of new immigrants who continue to come to Footscray for culturally specific goods and services. The social networks that form around these activities have become essential in fostering a sense of belonging and community participation for newly arrived immigrants.

The train station and tracks however have spatially and symbolically cleaved Footscray. On one side is a population distanced from a changing and multiplicitous public; this is predominantly a home-owning Anglo-Saxon demography. On the other, one that comprises of new immigrants that is disengaged from the older settled generation and the Maribyrnong river with its restorative and symbolic potential.

Figure 7. Footscray is a destination for new immigrants for culturally specific goods and services. Source: Kelum Palipane

The Design Proposition

We propose a public space linked to the train station that reconnects the populations, trade and the river. Conceptually, we considered the hub a point of intersection in journeys of differing spatial and temporal scales: the inter-suburban commute and of migration that spans across continental distances. We follow the migratory path of a body across multiple sites, beginning in Pettah, to the Footscray train station (Figure 8). This body carries with it the set of socio-spatial markers originating in Pettah, and we imagine them activated in this new setting.

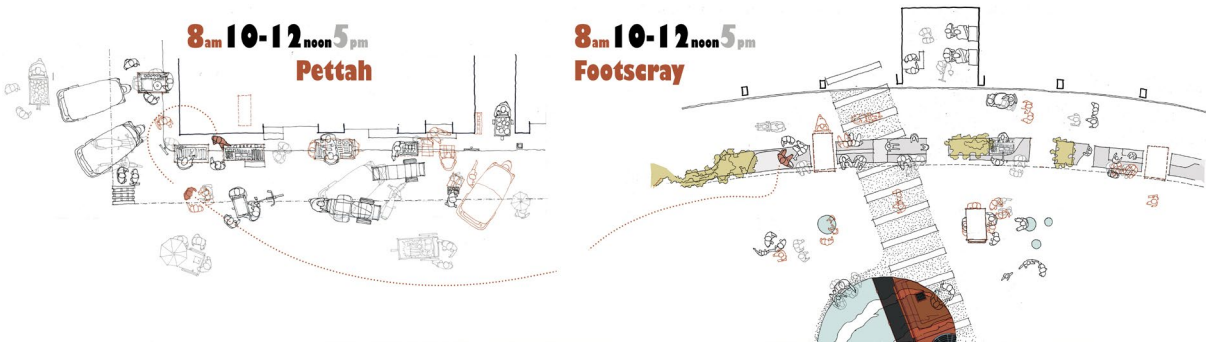

Figure 8. Following a migratory path, the socio-spatial markers are brought across and activated in a new setting. Source: Kelum Palipane and Pulina Ponnamperuma

The broad formal tectonic moves included moving the existing train tracks underground and creating a public space at street level. It is a space that is defined by two sloping lawns that start at ground level and rise to a level at points to accommodate shops underneath. The public are able to occupy these sloping lawns (inset, figure 9). A green axis of native plants from the river continues into the square while a retail axis comes in as shops under the lawn, a continuation of the multicultural shops and services seen in the retail center of Footscray. The rail users emerging from underground comprise a third axis, all three of which converge at the square (Figure 10).

Figure 9. Public square defined by two sloping lawns. Retail axis, green axis and commuters intersect at the square. Source: Kelum Palipane, Pulina Ponnamperuma

The socio-spatial markers that originated in Pettah impacted the finer scale design decisions, specifically the way we designed the edge where the retail met the public square (Figure 11). Shop facades were extended allowing for a graded spatial sequence between public and private.

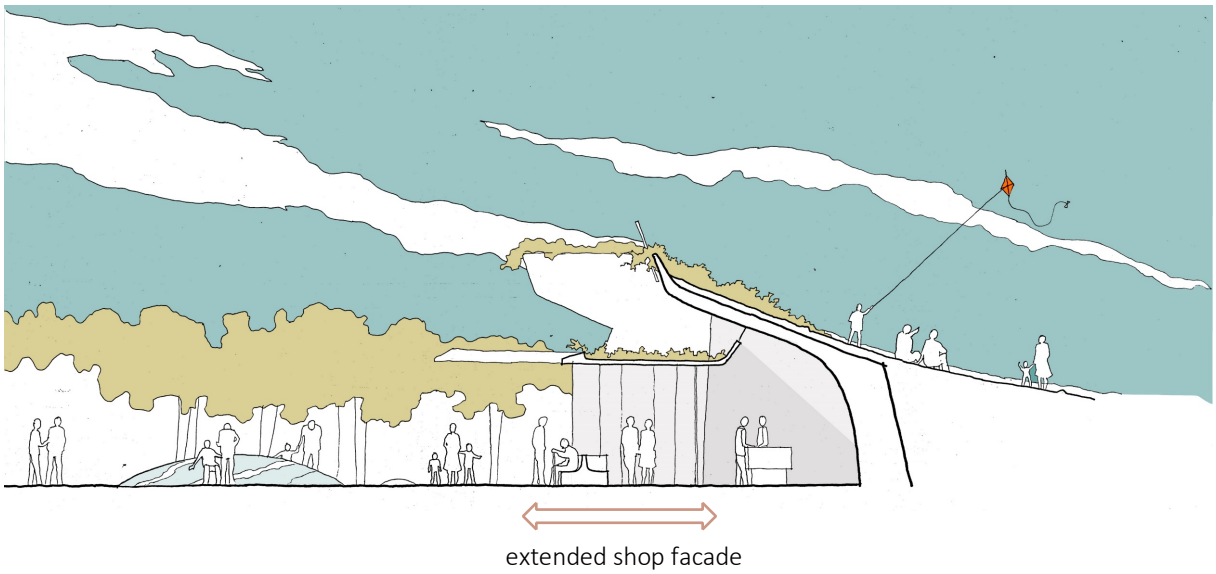

Figure 10. Shop facades were extended allowing for a graded spatial sequence between public and private. Source: Kelum Palipane and Pulina Ponnamperuma

This was facilitated by a structure which allows for multiple appropriations; as a waiting area for shop customers as well as the public waiting to catch trains or arriving from commutes, it allows for goods to be sold and displayed on its surface, and it also acts as a play structure for children. Mobile sellers that may cater to the shop owners and the waiting public are able to park trolleys overnight in the gaps in the structure. Portals looking into the trains running below allow a sense of dynamism to be experienced of being above and in proximity to the moving trains. The underground tracks are evoked by tracing them on the surface (figure 11).

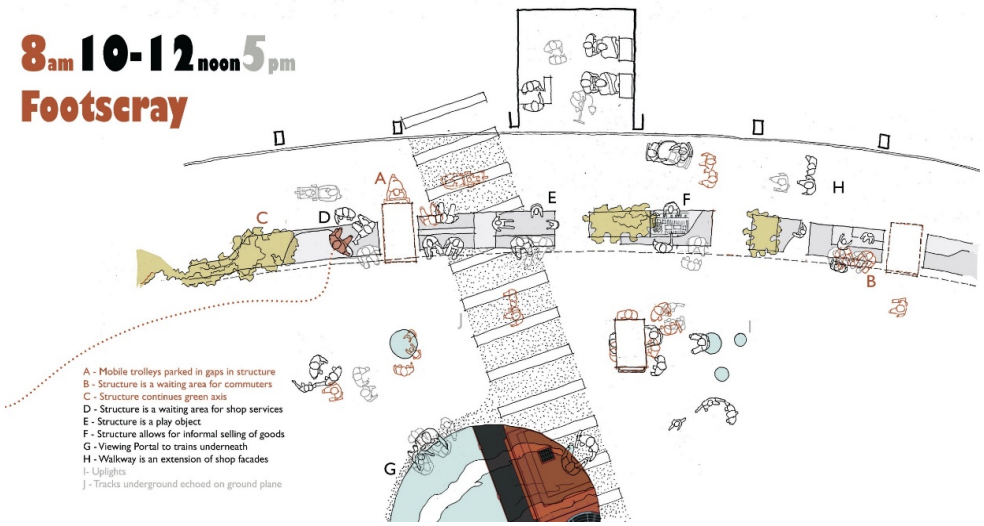

Figure 11. Where the retail edge meets the public square. Source: Kelum Palipane and Pulina Ponnamperuma

The project aimed to diversify Australian public space use and allow for multiplicity by:

- allowing for trade and commerce at different scales
- promoting agency in public space use
- allowing for meaning to be inscribed into place
- bringing programmatic complexity through the ephemeral and temporal use of space

The informal practices that were observed in Pettah are essentially ways by which a category of traders in a minority community use informality and mobility tactically to navigate a public sphere in which they lack social, cultural and economic tenure. The minority aspect of it is translatable to Australia if we're attempting to accommodate minorities in a socially equitable public sphere. Such spaces can not only allow new migrants to arrive and re-form social and commercial networks but also allow the broader public to encounter difference as it is being enacted.

FURTHER POSIBILITIES…FOR CRITIQUING/RECONCEPTUALISING THE FORMAL IN ARCHITECTURE

The study in Pettah demonstrated that informality and the socio-spatial practices it entails offer creative pathways for surviving and thriving in a way that is sensitive to context. Typically, the study of informal urbanism in architecture lends itself to small-scale, ad hoc interventions that operate at a tactical level. There is a disposition towards fetishizing and tinkering with the quotidian and does not address future-oriented design and planning processes. But I argue, the spirit of informality by its very nature, its very existence, critiques the formal, it lays bare the inequities of formal structures of power, formal legislation, formal design. Using this potential for critique, what if we use informality (through its identified socio-spatial markers) to reconceptualise architecture's archetypal elements?

If for example we consider threshold, Lucas describes it thus, "In architectural terms, the contact between two spatial conditions is typically described as a threshold. Most often, this manifests as a kind of doorway that mediates passage from one spatial state to another, such as from the outside to the inside."[3] A socio-spatial reconceptualising could see *threshold as a shared territory* with a more gradated and complex mediation from one spatial status to another (figure 12).

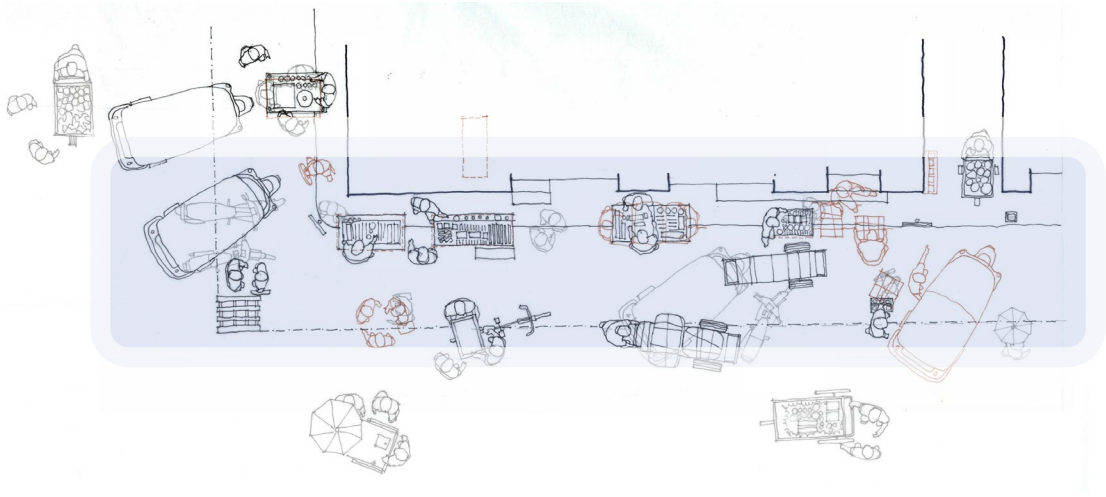

Figure 12. Threshold as a shared territory with a graded and more complex mediation from one spatial status to another. Source, Kelum Palipane, Pulina Ponnamperuma

A socio-spatial reconceptualising can also see *threshold as performative*. In Pettah I observed a performative aspect to 'threshold' that involve the use of ephemera. A sense of threshold is signified and performed by taking off and leaving footwear at the entrance, while 'kaha vatura' (this is water mixed with turmeric which is believed to have disinfectant and purifying qualities) is sprinkled on the ground in front of shops and similarly incense is burnt at the threshold (figure 13).

Figure 13. Sense of threshold performed in Pettah, leaving footwear at entrance (left), kaha vatura (center), and incense burnt at threshold (right). Source: Kelum Palipane

If programme (and its interrelationship to form, for example through facade) is reconceptualised through a socio-spatial lens, we can imagine *street facades of buildings that accommodate human infrastructure* (figure 15). Not only through a narrow economic or productive framing but allow people to network, inhabit and idle as in Pettah, where at the end of day, porters sit and stand around speaking, often through exhaustion but also debriefing, discussing events of the day. These surfaces

could allow for changing conditions, accommodate a changing public and an associated shift in status to occur.[4]

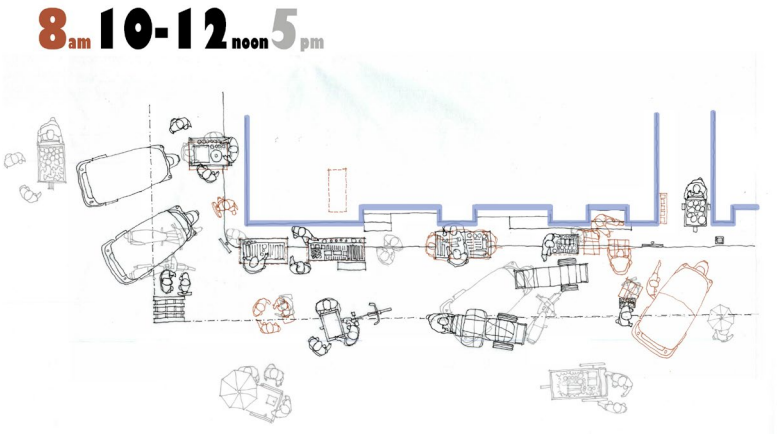

Figure 14. Street facades could accommodate human infrastructure. Source: Kelum Palipane and Pulina Ponnamperuma

DISCUSSION

Re-casting the socially uneven and culturally complex public sphere as one that has potential to inform design, the scholarly creative work presented in this paper began with the open-ended provocation, 'how do we design for/in/with difference?' Following a migratory path, the ethnographic study of Pettah conceptualised as a place of origin revealed how the socio-spatial practices of a marginalised community allowed bodies that do not possess social capital, inhabiting a tentative and conditional citizenship to gain access to its social, economic and civic domains. Ray Lucas encourages viewing such sites of exchange through a substantavist view of economics as proposed by Karl Polanyi. It considers economic activity as a socially produced system organised by kinship relations. Mostly seen in pre-industrial economies its basis lies in reciprocity as opposed to industrialised societies where there is a decoupling of economic activities from context and social conditions.[5] Viewing the observations in Pettah through this lens, as a socially produced system allows us to make sense of the diversity in relationships and practices that emerged, which often transcended the merely transactional. I argue that these socio-spatial markers of informality are relevant and translatable to other contexts if attempting to create cultural multiplicity, recognition and dignity for marginalized groups in a largely discriminatory public sphere.

This assertion echoes the theorising of 'messy urbanism' and informal urbanism which have gained traction in recent years, with clear implications for Australian environments with its emphasis on agency and informalised structures within cities.[6] It is connected to spatial/architectural understandings of urban ingenuity, improvisation, and new collaborations between public space and small-scale commerce.[7] However, the critique that has been mounted on concepts such as 'everyday urbanism,'[8] which has strong parallels as it similarly draws on the ad hoc, everyday spatial practices of communities, is applicable here - in that it does not have the ambition to systematically intervene in and change the city. That it is only a tactical reaction to its conditions.

Peggy Deamer has spoken of the need to reconceptualise the role of architects and by extension what we design, not only to be relevant in changing economic and social conditions but also to be advocates of a more socially equitable society. She says, "We need to reconceive what we do…that is, we need to design scenarios, not objects…our main task is asking and trying answer these questions - who is physically and symbolically allowed in one space versus another? and with what equipment? how and

when do we encourage connection? what powers other than our spatial ones that we might control are at play in these exclusions or incorporations? And how can we act as a bridge between those forces and the communities we're working for?"[9] The emphasis on scenarios is significant here. However, I argue that to consider the socio-spatial markers of informality as *generative* forces we need to couple them with architecture's formal ambitions, and through its inclusion, take the opportunity to critique architecture's existing and unquestioned paradigms. I reiterate here that insights into the mechanisms and complexities of informality could inform a *socio-spatial* reconceiving of archetypal architectural concepts such as programme-form interrelationships, façade (public-private interface), threshold (transition), movement vectors and trajectories allowing for the development of an architecture that is socially sustainable and specific to place. One that has a key role in "…articulating the building's place in the city, as well as shaping public space and public life."[10]

As a precursor to the socio-spatial, 'event' or action and its interrelationship to form and space has been previously theorised giving rise to creative experimentation through notation and diagramming in seminal works such as Bernard Tchumi's *Manhattan Transcripts* and Rem Koolhaas's *Delirious New York.* Tchumi reflects, "My work on The Manhattan Transcripts began with a tripartite definition of architecture as space, action, and movement. The resulting mode of notation was used throughout the Transcripts and led directly to the La Villette principle of superimposing points (of activities), lines (of movement), and spaces (of appropriation)."[11] Meanwhile Rem Koolhaas has said of programmatic complexity, "…any aspect of daily life could be imagined and enacted through the architect's imagination."[12] But invariably this means, often as single author, it has also been limited thus far by the architect's imagination.

More recently, with input from diverse scholars as well as practitioners drawing from varied contexts, the spectrum of understanding has expanded. For example, through the concept of 'urban surfaces,' Anuradha Chatterjee and Ray Lucas have theorised the significance of the formal articulations of urban buildings in accommodating and mediating socio-spatial relationships with the city.[13] Meanwhile, Atelier Bow Wow has been developing a body of creative work that interrogates 'architectural behaviourology' to develop the concept of 'architectural ethnography.'[14]

CONCLUSION

The design explorations presented here reveal one possible way cultural multiplicity, recognition and dignity for minorities can be accommodated in a largely discriminatory public sphere.

It drew from a fine-grained analysis of informal practices that demonstrated the diverse ways in which we can expand our understanding of how bodies inhabit the city and our public spaces. Rahul Mehrotra writes of informality, "It is not necessarily the city of the poor, as most images might suggest; rather, it is a temporal articulation and occupation of space which not only creates a richer sensibility of spatial occupation but also suggests how spatial limits are expanded to include formally unimagined situations in dense urban conditions." [15]

I argue insights into these mechanisms and complexities of informality could inform a *socio-spatial* reconceptualising of archetypal architectural concepts that not only critique existing paradigms but also help create an architecture that is socially sustainable, specific to place and as Mehrotra says, 'formally unimagined'.

ACKNOWLEDGEMENT

The design proposal discussed in this paper and associated imagery are the result of collaboration with architect Pulina Ponnamperuma. I would like to thank him for his valuable contribution. I also want to

extend special thanks to Gayathmi Hettiarachchi and Dhanika Kumaheri for their fieldwork and editing assistance.

NOTES

[1] Lyn Lofland (Lyn H. Lofland, A World of Strangers: Order and Action in Urban Public Space (New York: Basic Books, 1973) and Susan Thompson, (Susan Thomson, "Planning and multiculturalism," Planning Theory & Practice 4, no. 3 (2003): 275-293) have written extensively on 'designing out' difference. Leonie Sandercock has criticised the managing of difference through the imposition of a Western ideal of urban order – sanitizing and ultimately ridding the public realm of difference (Leonie Sandercock, *Towards Cosmopolis: Planning for Multicultural Cities* (Chichester: John Wiley and Sons, 1998). Meanwhile Sharon Zukin has written how during gentrification, the placemaking practices of some groups are excluded (Sharon Zukin, *Naked City: The Death and Life of Authentic Urban Places* (New York: Cambridge University Press, 2010), and Maree Pardy argues that in the case of culturally diverse environments, diversity is seen as a commodity through which to market places, while activities of certain groups are hidden or removed if they are not perceived as adding value to this marketable 'image' of diversity (Maree Pardy, "Multicultural Incarnations: Race, Class and Urban Renewal" (paper presented at The Future of Sociology: Proceedings of the 2009 Annual Conference of The Australian Sociological Association, Canberra, ACT, 2009).

[2] The fieldwork in Pettah was conducted over a two-week period in which I engaged in a multimodal mapping technique. The sensory rhythms associated with occupation of space are recorded and immersive ethnographic techniques are used to supplement the identified rhythms. This is a method which aims to retain the interconnections of time, space and the social body. For details on the methodology see, Kelum Palipane, "Multimodal mapping — a methodological framework," *The Journal of Architecture* 24, no.1 (2019): 91-113.

[3] Ray Lucas, "Threshold as Social Surface," in *Surfaces: Transformations of Body, Materials and Earth,* eds. Mike Anusas and Cristián Simonetti (London: Routledge, 2020): 99.

[4] Similarly, Anuradha Chatterjee discusses the spatial potentialities of building 'surfaces' lending themselves to occupation thereby denoting agency and the possibility of changing meanings (Anuradha Chatterjee, "Vital surfaces and the making of urban architecture," in *Surfaces: Transformations of Body, Materials and Earth,* eds. Mike Anusas and Cristián Simonetti (London: Routledge, 2020).

[5] Ray Lucas, *Anthropology for Architects: Social Relations and Built Environment* (London: Bloomsbury Publishing, 2020), 103-104.

[6] Vinit Mukhija and Anastasia Loukaitou-Sideris, eds., *The Informal American City* (Cambridge Ma: MIT Press, 2014).

[7] Davisi Boontharm, "Sketch and Script: made in/of Split", in *The Split Case (Density, Intensity, Resilience)*, eds., Darko Radovic, Davisi Boontharm, Kengo Kuma and Ana Grgic (Tokyo: International Keio Institute + flick studio co., Ltd, 2012) 64-71.

[8] See Rahul Mehrotra, ed., *Everyday Urbanism: Margaret Crawford vs. Michael Speaks Volume 1 of Michigan Debates on Urbanism* (University of Michigan: A. Alfred Taubman College of Architecture, 2005).

[9] Peggy Deamer, Keynote address, (presented at the conference Education, Design and Practice – Understanding skills in a Complex World Place: Stevens Institute, New York / New Jersey, June 17-19, 2019), AMPS, accessed July 11, 2020, https://www.youtube.com/channel/UCyfWS4KkYSauAaTV2pjrQlQ?view_as=subscriber.

[10] Anuradha Chatterjee, "Vital surfaces and the making of urban architecture," in *Surfaces: Transformations of Body, Materials and Earth,* eds. Mike Anusas and Cristián Simonetti (London: Routledge, 2020): 125.

[11] Rem Koolhaas, Bernard Tschumi, Ana Miljacki, Amanda Reeser Lawrence, and Ashley Schafer, "2 Architects 10 Questions on Program," *PRAXIS: Journal of Writing Building*, no. 8 (2006):12.

[12] Rem Koolhaas, Bernard Tschumi, Ana Miljacki, Amanda Reeser Lawrence, and Ashley Schafer. "2 Architects 10 Questions on Program," *PRAXIS: Journal of Writing Building*, no. 8 (2006):7.

[13] Ray Lucas, "Threshold as Social Surface," in *Surfaces: Transformations of Body, Materials and Earth*, eds. Mike Anusas and Cristián Simonetti (London: Routledge, 2020): 97-115.
Anuradha Chatterjee, "Vital surfaces and the making of urban architecture," in *Surfaces: Transformations of Body, Materials and Earth*, eds. Mike Anusas and Cristián Simonetti (London: Routledge, 2020) 116-138.

[14] Jennifer Sigler, Leah Whitman-Salkin, eds., *Architectural Ethnography: Atelier Bow Wow* (Cambridge Ma: Harvard University Graduate School of Design, Sternberg Press, 2017).

[15] Rahul Mehrotra, "Negotiating the Static and Kinetic Cities: The Emergent Urbanism of Mumbai," in *Other Cities, Other Worlds: Urban Imaginaries in a Globalizing Age,* ed. Andreas Huyssen (Duke University Press, 2008), 206.

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"IF FICTIONAL NARRATIVES CAN BRIDGE THE VARIED INTELLECTS, HOW CAN WE DISCOVER ARCHITECTURE AS A BUILDING TYPE "THE BRIDGE" IN URBAN CONTEXT?

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INTRODUCTION

We are witnessed to the chaotic expansion of mega cities in developing countries that have lost their narratives in accommodating the flux of borrowed technologies of robotics / mass transit systems and the digital communications. The scientific-technological narratives this development owned, do not match with the local intelligentsia. In the absence of intellectual growth of city this alien advancement is transforming public spaces into non-places[1] by forming bridging-less connections. The bridging actors, which have had an important role in bonding the citizens with their built environment before, are now being lost their presence and an amalgam of replaceable and resalable realities where man becomes the commodity of the system instead of goods is left behind. The bridging is a complex phenomenon having various manifestations and dynamics on urban stage. Either physical or metaphorical, these manifestations breathe in spatial memories and grow in dreams of citizens. Spatial memories and dreams after mutating into fictional narratives bridge the leftover physical and intellectual spaces of city by overpassing the physical constraints. Architects can integrate the physical manifestation as building type bridge and metaphorical role of building as a bridge to construct a thought-provoking idea by weaving the fictional narratives in design process of any mode of architectural expression. It further establishes the bonding between man and its built environment. The outcome product of this process can be understood as the bridging architecture, attained metaphoric as well as embodied experiences of bridging. To investigate this intercourse of bridging in the city there will be referential studies of text "Poetry, Language, Thought"[2] by Martin Heidegger and "Bridge: The Architecture of Connection Edited by Lucy Blakstad"[3] Without indulging in deep discussions on these texts, the possible role of outcome of these studies in discovering the bridging role of fictional narratives in constructing the architectural expression, will be the focused of this paper.

NATURE-THE UNIVERSAL NARRATIVE

Either breathers and non-breathers all we are the part of universal narrative called "Nature" but man is the only actor among them, who is not only the part of nature but also capable to impose his narrative on it. The cities are the best example where man has been inserting his version of narrative since ages

by adding man-made[4] in pre-existing fabric of nature. The well recognized book *Genius Loci: Towards a Phenomenology of Architecture*, written by Christian Norberg-Schulz has great discussion on phenomenological expression of soul of nature and its relationship with man-made. If we analyze the current situation under the light of argument presented by Schulz, mostly mega cities have grown like organisms and there is not any kind of expression left behind imagined by Christian Norberg-Schulz, except few traces. The un-planned infrastructural systems globalized economic forces and flux of information through virtual mobile technologies have ruined the romantic narrative of past and now our urban places do not narrate the manhood but become soulless bodies driven by money[5]. An important actor in this abandoned narrative is the "Bridging". Connecting the two through a bridge induces experiential time that introduces metaphoric depth in space, soul part for the bonding in between man and the built environment.

PHYSICAL MANIFESTATION

The physical manifestation of bridging as a bridge has significant role in human life. A lot of has been written about it but the most convincing argument we find is in book: "Poetry, Language, Thought" by Martin Heidegger. "The waters may wander on quiet and gay, the sky's floods from storm or thaw may shoot past the piers in torrential waves-the bridge is ready for the sky's weather and its fickle nature. Even where the bridge covers the stream, it holds its flow up to the sky by taking it for a moment under the vaulted gateway and then setting it free once more." [6]

It's the great explanation of phenomenology of bridge in poetic metaphoric language, which is the main argument of text; however there some more perspectives can be extracted from the same argument. Under influenced Heidegger's ideas I can say that man has historic love-hate relationship with ravines as water is symbolized as life but same time a destroyer in form of floods. By nailing the bridge pillars in the bed of ravine, man registered its ability to conquer the nature and celebrate this victory through monumental bridges. This contradictory relationship arise the feelings of fear, pride, strength, hope, belonging and freedom in its experience. Bridge is a transitional pause carrying the experience of being hanged in the middle of the three: land, sky and water, generates physical and mental anxiety starting from the one end, reach at highest level in the middle and than gradually low down along the other end of bridge, even if it's a leveled surface. Beside of this hanging experience, the resonance of hollow sound, humid air, smell of floating water, wide view of virgin landscape and variation of sectional scale in between road and the ravine intensify our experience, able to push us into another world of ideas. Despite of all, bridge itself is mysterious object stayed indifferent from surrounding landscape and despite of being sandwiched in between mobility, it stay calms. These characteristics give the bridges a prominent place not only as an integrating node[7] for society but the part of various cultural narratives all across the world.

Narratives of Bridges

This role of physical bridges cannot be sustained without narratives associated with them in any society. The bridging narrativity has been discussed in book *"Bridge: The Architecture of Connection Edited by Lucy Blakstad"* where she explores the emotional relationships of bridges in form of memorial narratives. Here memories of events related with bridges have more value than as an infrastructural facility. One example I would like to introduce here is Sigh bridge of Venice where we find a great outcome of the strategic location: function and integration of bridging experience with event and design. The Sigh bridge is located in between the court of justice and the prison, over a canal of Venice, where after final decision, the prisoner visually touch the water scape of Venice and sniff the humid air through marble meshed opening last time. The experience of being executed

enhanced by the bridging, opening on canal and untouchable landscape. A hanging enclosed space constructed in white marble stone has carried a mystery in its frozen existence not only for the prisoner but for the outer world as well. Another example is the "The Mostar Bridge"[8] from the book *"Bridge: The Architecture of Connection Edited by Lucy Blakstad",* situated in between Croats and-Bosniaks neighborhoods "We heard a mortar whistling and threw out selves down, then I looked up and saw a cloud of dust…. yellow like the sun. At that moment I said our bridge is gone".
The experiential time we add in form of phenomenology and the narratives unanimously make bridges immortal.

Bridge Dwellings

With the passage of time bridges become a gateway of dwellings for the commuters or sometimes become a dwelling itself for the citizens. By placing a dwelling[9] under or over the physical bridge we extend the pausing experience in space. It's like to live in a secret stationary moment as a stalker, hanging in the middle of floating time in terms of water, sky bodies and linear mobility. We can find examples of inhabitable bridges not only on ravines but also on streets of medieval towns, always add romantic pause in linearity of street.

METAPHOR AS A BRIDGE

After discussing the physical manifestation of bridging, the building as a metaphor is the next important dimension of bridging, where dominance of metaphoric characteristics over functional aspects transforms a building into a metaphor bridge or a bridge transforms into metaphor of something else just like the role of Mostar Bridge discussed above. In common architectural practice, we do not design buildings as metaphor, but personal or collective eventual memories of citizens transform them in to metaphors on collective or personal levels. However, historical sites, museums, monuments, memorials and some experimental works are few examples of intentional metaphors on urban stage where architects design the symbolic meanings not pragmatic functionality. The presence of past in present[10] is the common characteristic in these examples that keep rooted the citizens with their materialistic and non-materialistic past.

Virtual Dimension

Discarded by the designers the bridging, and the unconditional acceptance of flux of virtual communication technologies are transforming our physical or metaphorical bridging entities into high-speed virtual connections. In these connections space passing through the body[11] antithesis of bridging where body pass through space. These virtual connections are established on four-five G bands, an invention for machines, not for humans, questioning the existence of man ultimately creates an urban anxiety in space.

CURRENT SCENARIO

Overall, role of bridging on urban canvas can be understood as the game of snakes and ladders. The unpredictable extension or subtraction of experiential time in public spaces enforces us to think out of the box in routine of life. Designers are responsible to introduce and restore these bridging actors in urban landscape, however in local scenario of Pakistan architects have slandered against the forces I discussed before and have lost their master's role in intellectual growth of city. Consequently, now our bridges are appeared as lying carcass on dead waters on urban canvas. The mushroom growth of flyovers and under passes connect only places without bonding with man and separate the unified space opposite to bridges as "Flyovers exist but do not present and bridges weather exist or not they

always present". The metaphoric bridging role of historical sites also has lost its aura in structural and materialistic renovations. Without inserting new architectural intervention, just structural renovation or visually pleasant cosmetics is killing the bridging role of historic sites and converting them into showcase items. It shrinks the physical and mental space that our imagination needs to explore a historic site as a bridge. Parallel to renovation techniques, the insertion of new architectural interventions having extended time in between a person and the history of site is essential to attune[12] the aura of past with present.

Spatial Narratives

After this debate, it's being established that now we can't find the true soul of mega city in its physical experience, but it is housed in the hearts of citizens in form of personal or collective memories and desires. This immaterial history gains further strength from artists, intellectuals, historians and writers who bridged the society through their formal expressions. We can imagine the city, as a pool of intermingled bridging narratives where common man story is the basic unit having both fictional and real realms essential for the social integration. They grow and construct a parallel city of imaginative bridges hidden under physical reality essential for bonding with our physical world.

"ARCHITECT" FICTIONAL NARRATOR

However, it doesn't mean that architects are solely dependent on common man stories, or the visionary light of other forms of fictional expression to design but architects have to weave the narratives in their design fabric. The freedom a narrator enjoys expressing his ideas should be a part of imaginations of an architect. Unfortunately, not only architecture but also most fields have abandoned their visionary fictional imaginations and borrowing the science fiction for filling the gap they have and putting their all efforts to accommodate the scientific inventions. The production of fictional imaginations based on ideals of architectural space that should be able to set the new directions in design explorations just like science fiction participate a bridging role in scientific research is essential today. Yes, to achieve that imagination in reality, definitely scientific knowledge assists the architecture. The text "Invisible cities"[13] by Italo Calvino, the Laughing Girls by Douglas Darden[14], abstract architectural illustrations by Tom Ngo[15], narratives by Edger Allen Poe[16], drawings by Claude Nicolas Ledoux[17] are the few examples of fictional architectural expressions attain narratives in their experiences. Without indulging in debate of difference in theory and practicality, the architects are duty bound to bridge the various sections of society by provoking the intellectual debate through an architectural idea in form of any medium of expression before struggling to satisfy the functional pragmatic requirements. *(Architecture as a medium of expression has discussed by Nigel Coates in last chapter "Pure Narrativity" of his book Narrative Architecture, 2012, John Wiley & Sons ltd.)*[18] .

In any architectural expression, besides the intellectual depth of idea and the command on medium of expression, the approach is adapted to bridge them decides the nature of outcome experience. Many times, intentionally or un-intentionally, architects are muddled in between descriptive and narrative approaches during brain storming sessions of design process. Description is a basic and straight explanation without any extending-layered time of metaphor. The duck buildings[19] can be understood as the outcome of descriptive approach in comparison with decorated sheds having narratives in their layers. In narrative approach, we detach the sign[20] from building and gradually unfold the content. In comparison of two-dimensional linear time attained by description, narrative attains in form of volume creates void[21] that always demand higher intellectual debate to fill. The narrativity cannot be fully understood without discussing the fictional and real realms. The common architecture practice is considered as a fictional act, but the tactility of practice does not allow attaining the freedom that

fictional approach deserved. The real narratives are about the known experiences based on real-tangible argument, responsible for setting our physical standards.
The fictional narratives are the exaggerated forms of reality that reveal the hidden dimension[22] of experience based on in-tangible argument free from limits of measureable space-time.

Fictional Narratives in Design Process

In design process fictional narratives are responsible for the intellectual structural strength of architectural projects. Approaching architecture through a utopian idea is the beginning of fictional narrative approach, where free flight of fictional ideas is shaped up only when we narrate them in textual poetic expression. The words we choose to bridge an idea contain bundles of energy in their meanings. By placing them in specific sequence in a sentence we increase the potential depth of idea. Thought provoking literature and poetry are the examples of this potential energy, understood according to the intellect of audience. We detach the architecture from real parameters of space by restructuring the temporality of futuristic space through exaggerated hyperbolic fictional narratives. The subjectivity of fiction keeps the architectural experience unstable and could be contradictory[23] to pre-established rational argument but always open the new debates. Being a fluid entity, it cannot be stopped but we can set its direction according to our objectives. Fictional narratives come out of soul of humanity seeped in materiality of container through design process. Inappropriate conation in-between fictional narrative and physical space generate mundane experiences.
To examine this theoretical perspective, in narrative design studio we are imagining fictional bridges to build metaphoric connections based on history and morphology of site, having intellectual messages in their designs. These bridges can be imagined as "Ghost Bridges" roaming around in urban landscape. We will sculpt the bodies for them by suggesting building type "Bridges".

DESIGN STUDIO PROJECT "THE GHOST BRIDGES"

The project, I intend to discuss here has the both functional and metaphorical aspects done by one of my student Miss. Aimen Fatima under my supervision in narrative vertical design studio (4th Year-B-arch). The site under consideration is a left-over void right in the middle of the colonial time's educational institutes mostly. To find the missing connection in between site, surrounding buildings and the citizens with respect to past and presence, instead of spatial analysis we start looking at site with fictional imaginations and construct a metaphoric bridge in between site and us.
"We are approaching the site as a space haunted with memories, imagining through a fictional narration of rest less perturbed spirit of an unknown historian who was executed during colonial period publically on his unconditional commitment with historic-facts long time ago. Now his spirit is wondering around the executed site. Many people witnessed him trying to write historic facts dolefully on the walls and disappeared in them before dawn. There are rumors that his spirit is looking for a body to re-communicate with other people. These myths transform the whole area in to a haunted space filled with memories that add metaphoric depth in it."
By crafting the character of old historian through exaggerated fictional narrative, we signify the intellectual & philosophical perspectives of site. This initial imagination leads to propose a Ghost Tower-Bridge functioning as a residency for a guest historian-researcher and a public gathering space for open public lectures. It's a tower connected with the museum through a bridge hanging 3.5m above over the existing road. Tower accommodate writing/reading spaces on landings of staircase as well as the formal thinking space at the top, the connecting bridge attains personal library and a sunken public square is used for delivering the lectures and storytelling, is designed by carving out the soil under the existing road.

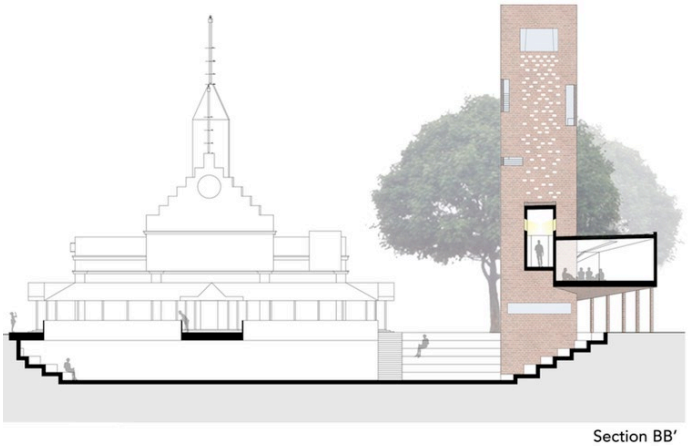

Figure 1. Section, designed & drawn by Aimen Fatima

This sunken square is equipped with free Wi-Fi facility and the adjacent blank wall of museum is utilized for weekly projections of videos on history.

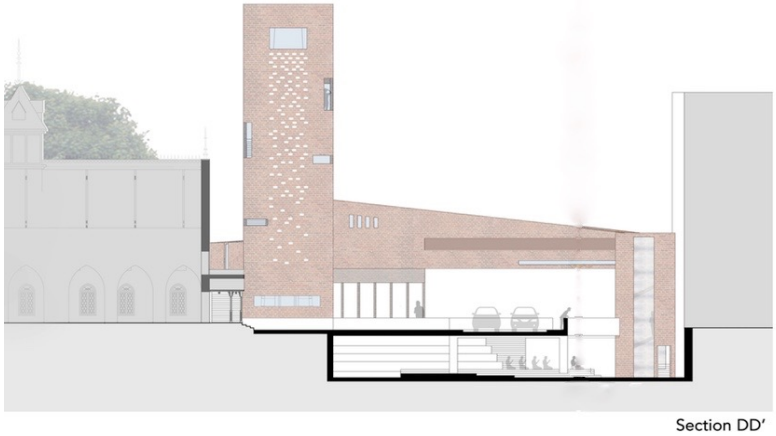

Figure 2. Section, designed & drawn by Aimen Fatima

Here, students of surrounding educational institutes can gather and participate in discussions. The thinking space at the top of the tower possesses symbolic intellectual stature, acts like a spiritual light tower at night and day for the surroundings. The hanging library bridge symbolizes the value of education and wisdom, keeps reminding the passersby about the leftover intellectual heritage of the city. The conversion of existing road into a bridge adds the bridging ambiance in watching experience of digital projections on the wall of museum.

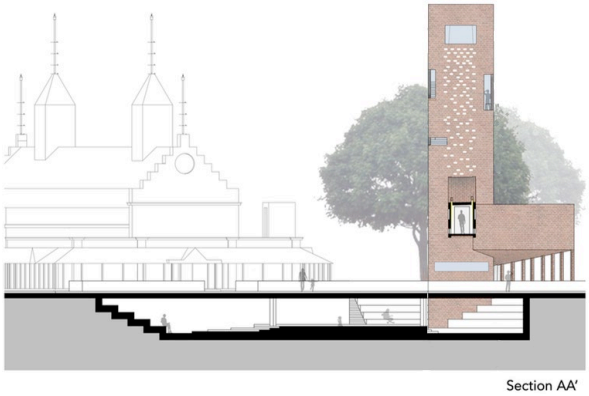

Figure 3. Section, designed and drawn by Aimen Fatima

Figure 4. Image rendered by Aimen Fatima

By inserting these interventions, we tried to bridge the citizens with their materialistic and immaterialistic intellectual history.

CONCLUSION

After studying the various aspects of bridging on urban stage, I find that metaphoric depth is the fundamental feature that transforms a simple connection into bridge. It's evident that the fictional narratives have the potential to assist the architecture in building bridges in between built environment and the citizens. Architects are the custodians of intellectual growth of city; they should have to take a swift position to defend and introduce the bridging actors who were responsible for bridging the intellectual growth of the city. The fictional imaginations in form of narratives possess the key role in this struggle where fiction that comes out of mediating space of history can transform the architecture into bridge. By ignoring the concerns of practicality, it's being registered that first responsibility of architectural profession is to bridge the spatial memories with futuristic dreams on individual and urban scale by coining an architectural idea on intellectual levels according to its vision about society. The insertion of architecture as a bridge in between spatial memories and futuristic dreams set the direction and strengthen the bond of citizens with their built environment. Today, despite of serving the science fiction or raising the questions related with physical structure and materiality by constructing out-scale alien forms, the architecture profession needs architectural fiction, that should come out from inner, a utopian idea act like ripple stone in static minds of society.

NOTES

[1] See for details, Marc Auge, Non-Places: *An Introduction to Super modernity*, trans. John Howe 1995 (London and New York: Verso, 2008), 61.
[2] Martin Heidegger, *Poetry, Language, Thought* (New York: Harper & Row, 2013)
[3] Lucy Blakstad, Bridge: *The Architecture of Connection* (Switzerland: Birkhäuser Basel, 1st edition, 2001).
[4] Christian Norberg-Schulz, Genius Loci: *Towards a Phenomenology of Architecture* (New York: Rizzoli, 1979)
[5] See, Anthony Vidler, *Warped Space: Art, Architecture, and Anxiety in Modern Culture* (Massachusetts: MIT Press, 2002), 25.
[6] Martin Heidegger, *Poetry, Language, Thought* (New York: Harper & Row, 2013), 150.
[7] Kevin Lynch, *Image of the city* (Massachusetts: MIT Press; Illustrated edition (1960)
[8] Lucy Blakstad, *Bridge: The Architecture of Connection* (Switzerland: Birkhäuser Basel, 1st edition, 2001), 144-191.
[9] Gaston Bachelard, *The Poetics of Space* (London: Penguin Classics; Reprint edition 2014)
[10] Marc Auge, *Non-Places: An Introduction to Super modernity*, trans. John Howe 1995 (London and New York: Verso, 2008), 61.
[11] Vivian Sobchack, John Beckmann, *"Seeing with your eyes" In Virtual Dimension: Architecture, Representation, and Crash Culture*, ed. John Beckmann, (New York: Princeton Architectural Press; 1st edition1998).
[12] Alberto Perez-Gomez, *Attunement: Architectural Meaning after the Crisis of Modern Science* (Massachusetts: MIT Press; 1st edition 2016).
[13] Italo Calvino, *Invisible cities* (California: Harcourt Brace Jovanovich, 1978)
[14] Douglas Darden, *Condemned Building* (New York: Princeton Architectural Press 1993)
Marc J Neveu, *"The laughing girls" In Chora 7: Intervals in the Philosophy of Architecture*, ed. Alberto Pérez-Gómez, Stephen Parcell, (Montreal: McGill-Queen's University Press; Illustrated edition 2016), 218.
[15]"Tom Ngo," Tom Ngo work, accessed June 19, 2020, http://www.tomngo.net/
[16] Edgar Allan Poe, *The Fall of the House of Usher* (California: Create Space Independent Publishing Platform 2015)
[17] Anthony Vidler, *Claude-Nicolas Ledoux* (Switzerland: Birkhäuser Architecture; 1st edition 2002)
[18] Nigel Coates, *Narrative Architecture: Architectural Design Primers series* (New Jersey: Wiley; 1st edition 2012)
[19] Robert Venturi, Steven Izenour, Denise Scott Brown, *Learning from Las Vegas: The Forgotten Symbolism of Architectural form* (Massachusetts: MIT Press; revised edition1977)
[20] Robert Venturi, Steven Izenour, Denise Scott Brown, Learning from Las Vegas: *The Forgotten Symbolism of Architectural form* (Massachusetts: MIT Press; revised edition1977)
[21] Horror Vacui, *"Constructing the void from Pascal to Freud" In Warped Space*: Art, Architecture, and Anxiety in Modern Culture, Anthony Vidler, (Massachusetts: MIT Press; Illustrated edition 2002), 17-24
[22] Edward T. Hall, *The Hidden Dimension* (Hamburg: Anchor; First Paperback Edition 1990)
[23] Robert Venturi, *Complexity and Contradiction in Architecture* (New York: The Museum of Modern Art; 2nd edition 1977)

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“SCALES OF ENVIRONMENT” OR DRESSING A BUILDING IN LAYERS: SPATIAL AMBIGUITY AS AN ENVIRONMENTAL, ECONOMIC AND SOCIAL MATTER

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INTRODUCTION

If efficiency is associated to housing discourse, it is often used as a term trend. What do we actually mean when talking about efficient housing design? How is space planning, cost and environmental performance related to it? In view of the growing interest for such questions, this paper intends to discuss the potential of spatial strategies to enable climatic resilience whilst at the same time provide additional spaces acting as direct/indirect extensions of the housing unit, at a low cost. With the term ‘climatic resilience’, we refer to the ability of space to adjust to different climatic conditions without leveraging mechanical capacity.

Following from the role of the façade as a central and decisive sustainable component[1], the challenge is to invent envelopes fulfilling multiple functions, from insulating to producing energy, ventilating, distributing electricity, etc. To fulfil these energy exigencies, it is important, on one hand, to reduce the size of the envelope in order to minimise heat losses, whilst, on the other hand, to increase its size in order to harvest the maximum amount of renewable energy. Specifically, this study intends to demonstrate the potentials of using multiple skin facades as a design solution that activates additional spaces acting as thermal regulators.

The paper begins with a short presentation about how ‘skin’ appears in architecture. Following from the idea that the insulation value of the human skin can be increased by wrapping the body with additional layers, applying a ‘layer logic’ in buildings augments the skin’s function to provide a series of stable spaces, suitable for human habitations. Following from this introduction, a synthesis of case studies in Europe, drawn from a variety of urban contexts, is presented illustrating how in-between spaces can be used as a method to provide thermally performant spaces, encourage typological innovation, and rethink the relationship between square meters and cost.

Skin as a shell: from a hermetically closed structure to a porous space

In live organisms, the skin is a multi-layered organ helping to control the body’s temperature. Acting like the body’s thermostat, it adjusts on weather, either by causing contraction to the blood vessels (in cold weather) or by increasing the blood flow to the capillaries (in hot weather), thus increasing sweating, which has a cooling down effect because it leads water to evaporate from the skin. In architecture, skin is a nearly universal way of referring to the exterior of a building. The term has

grown especially popular with the creation of completely smooth building envelopes through advanced curtain wall systems[2]. First proposed by Daniel Quenard[3], the Core-Skin-Shell concept presupposed the distinction of the building functions into three parts: the core is the living volume of the building, contributing to temperature regulation and inside comfort; the skin is a heat shield ensuring air tightness and thermal insulation, providing natural lighting and ventilation; the shell is the external layer, consisting of a shield that protects the building from outside threats and can become responsive and harvest energy from sun or wind. By applying this principle, what changes is the relational character of the building with the (exterior) environment, via the use of interim spaces. Defined as spaces bridging the gap between solely interior and solely exterior, transitional spaces, have a reconciling ability "to ease architecture's interaction with the natural environment, creating a relationship rather than a conflict"[4]. An illustration of such spaces would be a durable core for the private spaces together with a shell, constituting the transitional space(s). Depending on this, the relation between "in" and "out" changes and defines the type of interaction between humans and exterior environments.

Skin as an inhabited filter

In his book *American building*, James Marston Fitch proposed building as an environmental filter. Following the principle of *conductance adjustment* - "the ability of the body to imperceptibly adjust the rate of heat loss"[5]-, the insulation value of the skin can be increased by wrapping the body with additional layers: "clothing enhances the thermal performance of the skin by retaining heat and moisture". This "layer logic" can be applied in buildings as well, augmenting the function of skin to provide a series of stable spaces, suitable for human habitations. Instead of the 'exclusive' mode of sealed, artificial environments, architects can develop 'design alternatives' such as horticultural greenhouse-like winter gardens or balconies added as a front layer playing the role of an isolating space. This space does not have a pre-defined programme; it becomes an area where the residents could freely express their creativity. The added space on the exterior allows to further explore the potential of expanding a dwelling unit from the inside towards the outside. Beyond the possibility to be used in various ways, it plays a thermal role and decreases the heat loss. Furthermore, it remains flexible thanks to the adjustable/modular walls that define its edges and, therefore, allows living by the rhythm of the seasons.

This approach is not necessarily new; transitional spaces are common historical objects, carrying different functions depending on the building's nature. Such examples are the '*stoa*' in (ancient) Greek architecture or '*engawa*' in (traditional) Japanese architecture. Stoa (*στοά*) is a covered walkway or portico of considerable length (single or double storeyed), often with the looks of a temple-like structure. Its social function was the one of a promenades or a meeting space where people move along the long axis, discussing political or social affairs: stoa was used as a spatial device for framing the public market place (the agora) of an urban centre. Walking up and down, the light and dark sides of the space in relation to light would alter; physical movement combined with a relationship to light promoting well-being physically and intellectually. Other than being an outdoor living space, the stoa would play the role of weather protection. Climatically, it would shade both its own footprint; but would provide shade for the main building behind. Other than solar control, the stoa would protect from rain too.

Typical element of the traditional Japanese house, engawa (*縁側*), also called "en space", is an encounter space surrounding the house, connecting interior to exterior. Similarly, to the Greek stoa or the Roman portico, it is a hallway, a roofed transition zone, traditionally between the home and the

garden. The proximity to the garden intends to (conceptually) reinforce the connection with nature. In Japanese culture, the engawa's social role is to provide an informal meeting space, a place for sitting to encounter people: it acts as the most public layer of a private core. Unlike many of the rooms in a traditional Japanese house, it is a proscribed-free area by the dictates of social rank and etiquette: its users come and go freely. Therefore, the engawa has a versatile flexible nature since it has no dedicated programme; it could serve as a small workspace or as a relax/play area when enjoying the nice weather whilst at the same time connecting multiple rooms. Acting as a filter between the inside and the outside, it is neither completely enclosed or completely open: its special significance is that "it is not cut off or independent from either the interior or the exterior. It is a realm where both merge"[6]. As a buffer zone, the engawa does not solely serve the connection with nature but contributes to the protection from the weather outside as well, by transforming according to the climate changes and temperature variations.

Contemporary variations of such spatial mechanisms are a number of projects by Lacaton Vassal. For the renovation of Bois-le-Prêtre, a social housing block built in the 60s in Paris, Lacaton Vassal together with Frédéric Druot opposed themselves to demolition and replaced the entire façade adding a three meters zone around the building. Following the core-skin-shell principle, the emphasis was put on the last two: the core includes the existing framework of the tower, whilst the skin is the replacement openings and the shell is the main extension, done in three layers, including polycarbonate cladding which can open wide, sliding glass panels in aluminium joinery covering the full height, framed within a structure made by columns and concrete slabs. All openings are equipped with insulating thermal curtains internally, whilst shade curtains were used for the external layers.

For the architects the intention was to allow for spacious living areas reflecting the principles of individual housing (such as verandas), with transitional surfaces broadening programmatic capacity, allowing for a variety of spaces and enabling micro-climates. By allowing light, additional surface (without any rental increase), ease and liberty in the way of using a space allows for what the architects refer to as 'environmental priority' placing the user in the centre, and therefore, in a more comfortable and responsible position[7].

The use of repetitive standardised (industrialised) elements allowed for an easy and quick construction process providing a great deal of flexibility. New load-bearing floors were added on the periphery of the existing building, expanding the living areas (increasing by 24 to 48m^2) whilst creating terraces, balconies and winter gardens. In effect, the separation of the loadbearing structure and the envelope facilitates the dissolution of the façade into distinct layers, performing different functions[8]. The original façade was replaced by large openings, allowing for direct connections with the added space, and allowing more light, better air circulation and exceptional views. The winter gardens, widely opened in summer, contribute to a bioclimatic system by preventing overheating problems with a natural ventilation, and create a buffer zone in winter. Therefore, they generate an additional climate between in and out, forming a second thick envelop, which despite not being heated, it is capable of accumulating the solar gains depending on the seasons and restore them when it is colder. Overall, this system guarantees thermal comfort thanks to the thermal and solar protection through insulating and reflecting curtains, the capacity of the winter gardens to capture sunlight, the natural ventilation through wide openings in the façades, and the compact heated spaces in the core part of the building. The overall energy consumption for heating was reduce by 60% (250 KwH/m^2 prior to the renovation as opposed to 82 after the renovation).

At Ellebo Garden Room, another typical 1960's estate, Adam Khan architects renovated a block of buildings by enlarging the internal layout and adding to its envelope; thus, changing the living

experience. Each flat is transformed by adding winter gardens and balconies. Made of robust pre-cast concrete and protected by a glass façade which provides sheltering from the elements, the winter gardens convert into a semi-exterior space. On one hand, the winter gardens become a key component of a passive environmental strategy, reducing the heat loss of the flats in the winter and extending the outdoor period in spring and summer months allowing high levels of daylight. On the other hand, the balconies create a deep, sociable threshold and a strong dignified frame improving the living standards of the dwelling units by adding space -flexible in its use- and giving the user personal control over his surrounding environment[9]. According to the architects, "[t]his new hierarchy informed our work at all scales – a surgical manipulation of the flat layouts, the breaking open of direct access to the shared garden, and prioritising resources to obtain a deep sociable threshold of balconies and winter gardens. The shared garden will be allowed to diversify into territories and garden rooms with the overlap and friction desirable in public space."[10]

These spaces are appropriated by the residents as an extension of their private realms to the balconies. Consequently, the façade would become a collage revealing the life patterns and habits of the residents; a "mosaic of diversity", the winter gardens never look alike. Whilst during the colder months they may be totally enclosed -thus forming a buffer zone from the exterior cold-, in the summertime, they can open up via sliding away the glass windows in front of the balconies and opening the operable roof top panels -achieving natural ventilation and a direct relationship with the exterior gardens. In fact, the residents were offered an active role in defining the nature of the winter gardens layout, either as being individual, private spaces or shared between neighbours. In that way, balconies and winter gardens become flexible social spaces, oriented towards the central shared garden; thus, enabling a strong sense of 'belonging'.

Another example is the retirement living development for PegasusLife by Architects RCKa, where each dwelling is accessed via a winter garden. In this project, the winter gardens provide shared and semi-private amenity space on every floor: they become a design mechanism allowing to foster social interaction among the residents and approach the building's environmental performance. More particularly, access to the flats is done via a series of semi-external interconnected rooms that provide circulation to the apartments but also space for meeting with the neighbours[11]. By having dual aspect apartments with layouts highly adaptable to residents' changing requirements, the winter garden acts as extension to reception rooms or bedrooms (depending on the internal interchangeable arrangement). In that way, despite the visual link to the winter garden thanks to the dual aspect and corridor free apartments, residents define themselves the level of privacy and retreat or the openness of their flats.

Fitted with a selection of potted plants, the winter gallery rises across the whole south-east façade, with alternating voids and semiprivate double-height galleries that allow visual connections between the different floors, thus multiplying the possibilities for social interaction. Dieter Kleiner, founding director at RCKa, underlined the role of the winter garden at connecting people and creating an active elevation, which thanks to the translucent cladding allows to see people walking behind it from the outside[12]. According to Mark Kelly and Tom Capron (the project's engineers), "[t]he staggered floor voids aid natural ventilation with actuated exhaust vents on the top floor and vents within the lower levels for incoming air, […], [whilst] the entire winter gallery effectively acts as a large heat exchange which allows pre-tempered fresh air to be introduced into the apartments in colder months"[13]. Similar to the Lacaton Vassal projects, the outer skin of polycarbonate cladding and large-format sliding glazed screens are arranged in a chequerboard pattern reflecting the double-height seating areas. These can be opened in summer to provide natural ventilation, whilst once closed during the winter months, they temper "the internal environmental to allow continuous use"[14].

CONCLUSION

In the projects presented in this paper, multiple skin facades perform as a spatial device allowing to inhabit different layers, from public to private. Habitable all year long, these layers set various climatic conditions and act as 'scales of environment' providing different 'inhabitation patterns'. As interchanges with the external environment, they generate a micro-climate making indoor temperatures more pleasant and offer (an) additional space(s) seasonally flexible, acting either as direct or indirect expansions of the housing unit or (a) semi-public space(s) empowering social interaction. But how can this bioclimatic modular and adjustable system be applied independently of meteorological and social conditions as a design 'passe-partout'?

Whilst this design solution can be criticised when used systematically (it has become a design signature of Lacaton Vassal) as to what extent it remains a pertinent and efficient solution in all situations, it is with no doubt a spatial mechanism that enables an active reactional relation between 'in' and 'out'. In the case studies described in this paper, the role of the Skin is purely to insulate the dwelling, irrelevant of outside restraints, whilst the Shell obtains a passive role since it becomes a buffer zone between itself and the skin. More importantly, by separating the Shell from the Skin, an extra space is created: the shell stablishes a semi outside space with comfortable climatic conditions, with temperate atmosphere protected from wind and rain; acting as an exterior space inside the glass shield, it behaves like a micro climatic envelope. This mechanism introduces a different consideration of what was traditionally considered to be a 'barrier'; the external wall obtains 'thickness', therefore it becomes space which provides a connection to the outdoors by adding surface and enabling (further) access to views, light and air. This thickness provides a spatial alternative, a space in between the 'in' and the 'out' that hasn't a defined programmatic nature but becomes an extension to living spaces when open to the interior, especially during shoulder seasons when solar gains promote an interior environment within comfortable temperature range.

The environmental role of this spatial mechanism relies on the unconditioned 'winter-gardens'/sunspaces acting as solar heat collectors and thermal buffers between the inner core (the 'flat') and the outside climate during colder months; whilst natural ventilation is achieved through operable windows and shading (to avoid overheating during summer months). More importantly, such mechanisms provide a different response to architecture often considered as a technologised system targeting pre-established performance thresholds. Socially, it offers an encounter space for incidental inhabitation and informal occupation when shared or a space that could obtain an additional programme based on the users' choices. It also allows better connection with the outdoors, especially when the flats open up to communal gardens (like the Ellebo or Pegasus projects). In renovation projects (like Lacaton Vassal or Ellebo), the architectural invention becomes in fact a social invention as well, conceived as "transgressive alterations of the already existing"[15]. Finally, financially, such mechanisms provide additional square meters without increasing dramatically the cost; especially when referring to renovations, where the cost of the operation is much smaller compared to what it would be if the building was to be demolished and built from scratch.

The addition of multiple skins, or, the introduction of an inhabited shell between core and skin, bypasses mechanical solutions of hermetically enclosed envelopes aiming to attain a quantifiable and rigorous level of energy efficiency and thus, transforming the house into a static object without interaction with its surroundings. On the contrary, the building's façade is therefore perceived as an inhabited surface, a living organism that actively responds and adapts to the external conditions. Opposed to a monitoring relationship with the exterior environments, this strategy is open to 'unpredicted use' and prone to a resilient relationship with climatic manifestations based on exchange and adjustment and not enclosure and control.

NOTES

[1] Jacques Ferrier, *Architecture = Durable, 30 architectes, 30 projets en Ile-de-France* (Paris : Pavillon de l'Arsenal, A. & J. Picard, 2008).
[2] J. Hines, "Breathing Walls," *The Architects' Journal*, vol. 201, no. 4 (1995): 49-51.
The term "breathing walls" refers to a wall system with permeability for air and water vapour. It has been used to differentiate characteristics of earlier construction methodologies with today's airtight building envelopes.
[3] Daniel Quenard, *CSSB Project, Core-Skin-Shell Building* (Paris: CSTB, 2007).
[4] Christos Chrisovalantis Bolos, *Transitional Space in Architecture: Elements and Profound Experiences*, (Thesis, University of Utah, 2009), iii.
[5] Scott Drake, *The Elements of Architecture. Principles of Environmental Performance in Buildings* (London: Earthscan, 2009), xii.
[6] Kisho Kurokawa, *Rediscovering Japanese Space* (New York: Weatherhill Inc, 1989), 54.
Traditionally, there are no sturdy, divisive boundaries to separate each individual property or the inside from the outside.
[7] Craig Buckley, "Never Demolish: Bois-le-Prêtre Regrows in Paris," *Architecture Criticism* Log, No. 24 (Winter/Spring 2012): 43-50, accessed July 3, 2020, https://www.jstor.org/stable/41765466.
[8] Eva Maria Herrmann, Martin Krammer, Jörg Sturm and Susanne Wartzeck *Enclose | Build: Walls, Façade, Roof* (Basel: Birkhäuser, 2015), 30-31.
[9] Ellis Woodman and Ivor Smith, *Exemplary Housing Estate Regeneration in Europe* (London: AJ Publisher, 2015), 30-33.
[10] Adam Khan, "Ellebo Garden Room, Copenhagen," *Domus* 992 (2015): 42.
[11] According to the architects "[l]oneliness and social isolation are recognised as huge issues facing older people. This project celebrates chance meetings with neighbours and moments of informal social interaction, to create a rich and vibrant retirement living development that suggests how innovative design can nurture a sense of community and belonging". "PegasusLife Hortsley," RCKa (n.d.), accessed November 25, 2019, https://rcka.co.uk/work/pegasuslife-hortsley-2/.
[12] Stephen Cousins, "Winter warmer," *The RIBA Journal*, (2019), accessed July 4, 2020, https://www.ribaj.com/buildings/rcka-retirement-apartments-cladding-wintergarden-seaford-stephen-cousins.
[13] Owen Hopkins, "Outgoing and retiring: RCKa's Hortsley housing scheme for PegasusLife," *The Architects' journal*, (2018), accessed November 17, 2019, https://www.architectsjournal.co.uk/buildings/outgoing-and-retiring-rckas-hortsley-housing-scheme-for-pegasuslife/10036886.article.
[14] *Ibid*.
[15] Sten Gromark, Mervi Ilmonen, Katrin Paadam and Eli Støa, *Ways of Residing in Transformation. Interdisciplinary Perspectives* (London: Routledge, 2016), 190.

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THE SPATIAL ETHOS OF THE CARNIVALESQUE: URBAN SPACE AS THE-PRIVATE-WITHIN-THE-PUBLIC

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INTRODUCTION

Contemporary dwelling and urban coexistence

Today, an intensive interest on collectiveness and its possible implementations in spaces and realms of public life, political claim, housing, working, production and consumption, is being obvious. In the range of these fields, collective space was not always realized as opposed to individualism neither was always oriented in improving life for all, but more often became a mean of fostering insulation, enclosures and exclusion. Despite the forms and the appearances, however, the suggestion of collective space as a field of living opens the issue of relating to the other people and may introduce ways of coexistence in dialogue with dynamic spatial practices.

Indeed, in the contemporary city people face new conditions of life characterized by diversity on the one hand and discrimination on the other. Conceived as a continuous denoting anapraxis, collectiveness could provide a new context for the city considered as open to difference and conflict, rather than as a neutralized void or a repressive completion. Seeking a spatial interpretation of the Bakhtinian approach of the city, in this paper I explore possible ways though which we could conceive an alternative prospect of urban space's creation in order to open paths for transcending dominating and excluding functions of the existing mechanisms. To this purpose, I draw on the concept of the carnivalesque, as well as the polyphony and the tragic as its content, and aim at constructing an argument on how urban space could become a place of coexistence between others, in other words how we could, from an architectural point of view, reinvent the city as a place of habitation for all in a perspective of democracy and justice in everyday life.

CONCEPTS OF INCOMPLETENESS: TRAGIC, POLYPHONY AND THE CARNIVALESQUE

The questioning of completion was being discussed in the context of postmodernism, yet it had been already proposed in multiple ways in the Modern philosophy. The subject had ceased to claim completion through reason, while harmony had been gradually abandoned both as an inherent virtue and a pursuit.

Nietzsche describes as Tragic both the reality of intimate disharmony within the subject and its resentful acceptance. The mind and the senses are normally unable to come to a state of equilibrium and the unique moment in civilization history when such achievement was realized was the Greek

tragedy. In *The Birth of Tragedy*, Nietzsche[1] acknowledge two anthropological types in opposition to each other, the Apollonian and the Dionysian, while finally noting their harmonious assemblage in the Greek tragedy. Later, in *Genealogy of Morals,* Nietzsche[2] departs from the premise of reconciliation between opposites and affirms life through the impossibility of completion, harmony and truth. Having removed from the interpretation of life on the basis of consent towards difference and conflict, Nietzsche renounces the need for justification of pain and resolution of contradiction by symbolizing Dionysian disjointment and confessing the multiplicity of the one and the primacy of the life itself[3]. The tragic optimism constructed in the Nietzschean conception of life as multiplicity incorporates the becoming, the continuous movement in time, the conversion and the transformation as confirmations of being.

The tragic multiplicity of the world is also acknowledged in another interpretative context by Mikhail Bakhtin. Bakhtin[4] talks about polyphony as a simultaneous coexistence of multiple equal and unassimilated voices: the subject is constructed through the incorporation of this polyphonic reality. The conflicting voices are placed next to each other on the same surface, in a common space instead of a temporal sequence, preserving their autonomy and continuing without merging their impasse dispute. In this sense, as resignation from the dissolution and the completion of truth, polyphony is tragic. Indeed, in *Dostoyevsky* the destruction of the hero occurs insofar as he does not recognize the other as an autonomous subject with his own world but absorbs him as an object in his own complete and trapped world[5]. Exactly this active coexistence of others results in the postponement of the moment of despair for the absence of some solution regarding their harmonic affinity[6]. Furthermore, it is also their active coexistence in a field of incessantly renewed interaction that introduces collectiveness as a content of polyphony and a concept cohesive to the tragic imperfection of reality.

The concept of polyphony in Bakhtin refers, like Nietzsche's tragedy, to a radically pluralistic and incomplete reality of differences and contradictions, yet whereas in Nietzsche the basic conceptual category is the becoming, in Bakhtin the concepts of coexistence and interaction take on the primary importance. In the intersection of the two, however, a particular significance is acquired by another Bakhtinian concept, the carnivalesque, in which tragic disharmony, polyphonic pluralism and subversion, intersect on a common space.

In *Rabelais and his world* Bakhtin[7] anatomizes a whole folk culture of Middle Ages and 16th century Renaissance in Europe, focused on bodily action and unfolded unofficially at the whole city. The carnival, revelry for all people, constitutes an alternative version of life which provides people with the chance to unchain from their social roles and become their imaginary selves. During the carnival, people are masked. Masks hide people’s faces and the oppression history of their construction[8]. For the short term of their carnivalization, people are released from their internalized identities and in this sense, they are not congruent with themselves. In such context, individuality is to be understood as otherness within the subject, which makes a tragic containment of collectiveness within the individual in an analogous way that the individual consciousness is polyphonic. Simultaneously, the masked carnivals demonstrate a collective condition of life as they participate in the allocation of social roles and identities, being yet capable, as carnivals, to subvert the existing hierarchies. Moreover, the carnival mirrors a culture of laughter where people laugh unstoppable against themselves and the others producing ambiguity about what they are and what they are not and causing a perforated and challenging communication. The laughter itself demands situations of communication between people[9], while at the same time is provoked through the loss of self control[10], implying a reduction of the individual subject. To this measure the interacting laughing carnivals produce both situations of

meaning deterritorialization - reterritorialization and a weird sort of self permeability, and in this sense the carnival fest implies collective space as a process of transformation and change.

THE CARNIVALESQUE PIAZZA: INTERMEDIATE SPACE AS THE-PRIVATE-WITHIN-THE-PUBLIC

Renzo Piano has made the distinction between the plaza and the piazza, where the former constructs a commercial place, while the latter is an empty space with no function, open to unforeseeable uses by people whom it provides with alternative forms of enjoyment[11]. The unofficial folk culture of the carnival had its own territory, the *piazza*. This piazza, which Bakhtin refers to, is not just the material square space, nor even an empty triggering space of joy and fantasy, but moreover the *place* where people come together to live their festive life[12], done away with their normal role-identities and acknowledged the tragic reality of their non-transparency-in-themselves. The carnivalesque piazza has been created in an informal and inverted version of the city, by people who made merry all-popularly, without anyone to exclude, by a consisted collectivity based on humanness and freedom, by a carnivalized multitude of the piazza.

Two remarks are necessary at this point: Firstly, the multitude at the piazza was of a social quality. The humanization of the people through removing their social identities in terms of class, gender, property, administrative status, did not mean their de-socialization but the experience of an existence which is human as social, where the social is not constructed from above but created due to humanness, by and between people and all-popularly. Secondly, the piazza's multitude was collective: the carnival at the piazza was lived by all people, not in the sense of a completed, defined whole, but in the sense that "no one could experience the carnival separately from the multitude at the piazza", then not as a stable wholeness but as a temporary unity unfinished and undefined. At the carnival piazza people were not invited, were not favoured or disadvantaged in any sense, were neither spectators nor owners, but they were *at home*, they were the creators as participants of the event, of their constantly transformed common life.

At the carnival piazza, urban space discards its usual meanings of power imperatives and becomes a *void* for everything and a *place* for everyone. Ultimately, the carnival piazza constructs a spatial metaphor of the Lacanian lack upon urban design and a clear acknowledgment of the radical prospect opened up for the creation of urban space. The Carnivalesque space is not divided in separate areas and is not limited in specific parts of the city. "During the carnival there is no place to go in order to escape … the home doors are open for all the people", the private space is publicized, the interior is extended towards the exterior which in turn penetrates into the former. Such topology of the inside-outside introduces the carnivalesque space as *all-urban*, every part of the city constructs the piazza, *the Carnivalesque piazza has no boundaries*, neither material nor symbolic: it is continually becoming, recreated and transformed.

Moreover, the Carnival is experienced by the whole man, in thought, in emotion, and in body[13]. Here, the human body does not refer to the Modern split of the individual into a private spiritual and a public corporeal being, which resulted to the naturalization of individualism and the perception of the social reality as externally imposed[14,15]. The carnivalesque body is exaggerated in terms of functionality, morphology and presence[16]. It is universal, it is not individualized and isolated from the rest world. On the contrary, it is socialized and mixed with the world, it transgresses its own limits either by going out to meet the world or let the world to enter it. It is unwrapped and tragic. In Bakhtin's words "The material bodily principle is contained not in the biological individual, not in the bourgeois ego, but in the people who are continually growing and renewed. This is why all that is bodily grandiose, exaggerated, immesurable"[17].

The body realizes the intersection of the society and the individual, of the internality and the externality[18], and the carnivalesque body, as not congruent with itself, as masked and exchangeable, creates an intermediate space, *where the boundaries between the city and the home are questioned*, as the former becomes an articulation of habitation moments. In this sense the carnivalesque body contradicts every classic aesthetic, any aesthetic of finitude and completeness and points out to an urban space where the home is being understood as departure for a junction with the city. The Bakhtinian Carnivalesque introduces the city as the paradox of a *brutal social space*: earthly, bodily, authentic, and yet ordered in people's way. The Carnivalesque brutal social space, created through conflictual practices *in a constantly recreated urban organization of public and private areas*, becomes common and political and all-urban, occupying the whole city, transcending the excluding antithesis between the public and the private towards a perspective of *the-private-within-the-public.* This concept claims that the private and the public exist, live and grow only through each other, and corresponds to an epistemology which considers the individual and the collective as mutual prerequisites to each other[19,20]. As a quality of space, the-private-within-the-public reintroduce the relationship between the private and the public space - which is culturally distorted as consisting a polemic -, while demonstrating the unassimilated character of both in the urban configuration. In this sense, the-private-within-the-public transfuses a conflictual quality to the urban space, which in this way welcomes the creation of any kind of intermediate spaces as places of new possibilities and introduces meaning as open to change[21].

In specific, in the perspective of the-private-within-the-public, *intermediate spaces* may be conceived as spaces of free encounter between people, be it thresholds to connect and welcome[22] or other forms of polyphonic spatial coexistence to challenge the existed meanings[23]. They may also refer to other forms of urban spatial configuration with generalized common areas and smooth transitions to privacy, or furthermore they may refer to unmediated articulations between private and public parts of the city without specified transitional spaces. In this sense, they do not have to mean a blurring mixture between the private and the public neither a resignation from the meaning contest between them, but rather a meaningful openness in difference and a continuous receptiveness to potentiality. Fields of penetration, extension or mutual allowances between the inside and the outside, areas of challenging the finite character of materiality or spatialities which rescind the distances between the poles of any topology may possibly construct such intermediate spaces. Here may also belong the urban leftovers, the spatial margins right next to the institutionalized city making real an urban wilderness[24], as well as any sort of common voids welcoming the dwelling practices of a directional multitude[25]. Here, may belong the conscious spatial processes acquired through body action and movement in the lived city at a time that it is full awake instead of taking place in desolate streets and places after bourgeois orderliness and political-economic normality of everyday flows[26]. Moreover, here may belong Hejduk's spatial conceptions of the encounter with the other, of a simultaneous loss and plenitude[27] and, furthermore, here may belong the abnormality of the other urban scene created by those spaces which have been rejected through the oppressive mechanisms of authority[28].

In such atmosphere of freedom, imagination and familiarity, unexpected forms of interaction and collectiveness are developed as a temporary tracing of participants' plural identifications. During the carnival another kind of urbanity is constituted. Urban space is understood out of the official life and any kind of normativity and fragmentation. Creativity, transformation and multi-connectivity make a city were the 'objective ambivalence of the existence' find its place, a *carnivalesque place* constructed by the people and for the people, but also between the people as long as they are nothing but the participatory collectivity of the multitude at the piazza in its all-popularity. Such kind of the city is

incomplete and always on the move, which points out the relativity of every power and predominant truth and indicates the coexistence between others as a real potentiality.

CONCLUSION: THE SPATIAL ETHOS OF THE CARNIVALESQUE

Given that meaning is both a means of domination and an unavoidable factor of the human condition, postmodern thought tries to relieve human societies from its autarchic function and excluding permanence. Against normativity, contemporary architecture proposes performativity[29,30], in the sense that the meaning mediated through body action allows for pleasure and creation, in contradiction to a spatial design and occupation based on reason, where space functions as an instrument towards implied meaningful constructions[31]. Against correctness and perfection, postmodern politics propose continuous practice and exercise, in order to escape from exclusions and approach to a democracy for all[32]. Against social determinism, Lacanian psychoanalysis introduces the subject both as autonomous and multifactorially constructed, leaving on the one hand escape routes from the power mechanisms and on the other hand evading the ideology of a total subjective autonomy and self-determination which overlooks the internal meeting with the other and isolates the subject within individualistic processes[33,34]. And against formality and permanence, spatial planning proposes a city equally fluid and processual[35].

In a similar context, the Carnivalesque introduces urban space as a place of conflictual polyphony originated through individually and socially interacting subjects tragically condemned to no harmony. The Carnivalesque proposes the city as the arena of all act and experience[36], connecting the constitution of social reality to the realm of everyday life, the most real of all lives, actualized at the piazza. Political theory highlights the double character of space at the same time both as a field of manipulation and emancipation: The empty space of Piano's piazza may be connected with the production of an alternative jouissance which means the integration of spatial emptiness in the perspective of a radical democracy. This spatial emptiness is nothing but the lack in the symbolic order which makes possible new unpredicted functions, practices and meanings. A radicalized version of such empty space constructs the brutal social space of the carnivalesque piazza by subverting the normalities of everyday life and proposing alternative architectures of public and private spatial organization. Furthermore, at the carnivalesque piazza, collectiveness is being understood as a reality of interaction between individual others, which actualize coexistence as a dynamic process. The tragic doom of the subject to the a-rhythmical swing of multiplicity and difference orientates collectiveness towards intermediate spaces, not spaces of blends and reconciliations, but active fields of conflict, displacements and transformations, open to meaning reversals, intermediate spaces which are being produced again and again.

Architecture underlies the liberating potentials of the intermediate, while approaches of common space tend to overcome the symbolic dysfunctionalities of public space by highlighting the creation of the city by and for the people on a basis of a natural common origin of space. Widening such approaches, the concept of the Carnivalesque points out to a brutal social space in the perspective of the private-within-the-public where intermediate conceptions of private and public space are open to people's interactions and fantasies in an endless plural participatory process of meaning production. The creation of space is being conceived as a continuous *anapraxis* between the people who design and dwell, their undefined multiple combinations, their abnormal imagery. In the light of such perception, the city is collectively constituted outside the urban commercial and sovereign functions, in the framework of the everyday, where the rational function of planning engages with the conduct of actual physical living, which now more than ever constitutes a political act.

The Carnivalesque constructs a sort of urbanity concluding all people and introduces coexistence in a common world where exclusions are replaced by the absence of completion and identity gives ground to the mask. In such context, *it points out to every kind of intermediate spaces as places of otherness' potential*. *The carnivalesque piazza*, *as a conception of urban space relieved from the excluding opposition between the private and the public, consists a quest for a just dwelling within a structurally unjust world.* Its power and impotence shrink and expand up to the measure to which praxis creates consciousness and vice versa. The masked body, the festive laughter, the boundless piazza create *a spatial ethos* where the tragic reality demonstrates identity and its failure at the same time, acknowledging the complexity of life. The carnivalesque space is all-popular and all-urban bringing forth an undefined future ceded to the people's piazza.

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[4] Mikhail Bakhtin, *Problems on Dostoevsky's Poetics*, transl. and ed. C. Emerson (Minnesota: University of Minnesota Press, 1984/1963).
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[6] Ibid, 66
[7] Mikhail Bakhtin, *Rabelais and his World*, transl. by H. Iswolsky (Bloomington: Indiana University Press, 1984/1968).
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CAN URBAN FOOD PRODUCTION IN INFORMAL FOOD SYSTEMS BE SUSTAINABLE? AN ASSESSMENT ON THE CASE OF NANJING

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INTRODUCTION

The increasing urbanization and population growth in China have raised questions about the employment, food security and environment protection. In modern society, farming is no longer the most significant economic activity since intensive agriculture and efficient logistics emphasize distribution and transportation in global food supply chains.[1] This trend has resulted in vulnerable food systems which cannot cope with disasters and the growing urban poor. So urban food production begins to be paid more and more attention due to its contributions to biodiversity, the provision of fresh food and the reduction of carbon dioxide.[2]

Various urban food production programs are involved in the municipal agenda around the world, but these activities are taking risks of gentrification.[3] Middle- and upper-class residents can benefit from allotment gardens, community-supported agriculture and farmer's shops. While contributions of small-scale urban food production which supports a significant number of the urban poor, are being neglected in Chinese cities. Disadvantaged groups engage in urban farming practices and informal food vending to make a living in cities. A survey of migrant workers in Nanjing in 2010 found that female migrants who worked as street vendors represented 26% of the informal employment groups, which almost twice as much as males (14%).[4] Most of the small-scale urban food productions are spontaneous and lack supports from the government and organizations.

Informal food systems refer to various food supply chains in which either food production or the marketing (or both) is informal. Urban food production is a vital part of informal food systems, which links with urban ecology, urban food supply and urban labor. The informal sector is made up of informal production units or informal sector enterprises, which is determined according to national conditions.[5] In China, family workers, the self-employed and casual workers are categorized as informal employment groups. Enterprises with seven or fewer workers are also considered to be informal.[6] Urban food production in this article includes informal agricultural production and formal micro-urban farming. Typically, urban agri-food producers sell their products to customers directly at street markets or itinerant food stands. As in many other Asian countries, informal food marketing is facing challenges in China today. Therefore, whether informal food systems can be sustainable is a question worth exploring. Can we enhance current informal food systems by integrating urban ecology, food supply and poverty alleviation to provide long-term benefits to cities and society? How

could small-scale urban food production in informal food systems be resilient, healthy and sustainable?

INFORMAL FOOD SYSTEMS

Components of informal food systems

Informal sectors in production and marketing decide the components of informal food systems. Informal food production happens in temporary arable land (between expropriation and construction) and abandoned land that their agri-food is sold to urban residents by vendors. Dispossessed farmers and low-income urban residents produce food in non-agricultural land which is temporary or even illegal available for food production. Traditional food systems with short food chains are gradually transferred into modern food systems that emphasize distribution and retail.[7] This trend accompanies by marginalized informal employment groups in food systems. It provides the chances of survival of small-scale farmers, urban disadvantaged groups and rural migrants. Rural-urban linkages are increasing, and peri-urban farmers who are involved in agriculture get not only a source of income but also a source of leisure. Vendors provide fresh perishable vegetables and fruits for urban residents that these foods are more affordable than supermarkets.[8] Therefore, informal food systems focus on small-scale food production and vendors' markets that contribute to local food and short food chains.

Features of informal food systems

Informal food systems are marginalized by growing food companies and complicated modern logistics. They are also ignored by public policies and is criticized as the threat of food safety. However, the existing of informal food systems in developing countries demonstrates that there are many grassroots still need to rely on these agri-food trade activities.[9] The failure of "vendors clean out plan" in many cities shows that eliminating informal food markets and small-scale farming can be unrealistic. Besides, traditional food systems contribute to the city's metabolism that local food production and consumption contribute to reducing the inputs of energy and materials by using local resources and reducing outputs of many kinds of waste.[10] There are many differences between formal food systems and informal food systems that are summarized in Table 1.

	Informal food systems	Formal food systems
1. Population	Mostly disadvantaged groups e.g., older people and women	Mostly advantaged groups e.g., food companies
2. Principal employment in the food sector	Mostly in food production and marketing	Mostly in food manufacturing and retail
3. Supply chains	Short, small number of food miles	Long, large number of food miles
4. Food production system	Diverse, varied productivity	Few crops predominate; intensive, high inputs
5. Typical food	Seasonal food, fresh plant-based food, unbranded	Monotonous food, processed food, branded products
6. Packaging	Low	High
7. Purchased food brought in	Vendors, open-air markets, wet markets	Supermarkets
8. Food safety issues	Pesticide poisoning of field workers	Pesticide residues in food adulteration
9. Nutrition problems	Under-nutrition	Chronic dietary diseases
10. Major environmental concerns	Soil pollution and water abuse	Chemical runoff, greenhouse gas emissions

Source: adapted from[11] and [12]

Table 1. Comparing features of informal food systems and formal food systems

URBAN FOOD PRODUCTION IN INFORMAL FOOD SYSTEMS IN NANJING

Methods and materials

To identify and document informal food chains in Nanjing, fieldwork had been executed in August and September in 2019. Vegetables and fruits are the main food items in street markets by investigation of the morning market in Xiaolingwei sub-district. This article focusses on small-scale urban food production in informal food systems. The starting point was vendors who are selling vegetables in central areas of Nanjing. Street morning market in Xiaolingwei and itinerant vendors in the Old Town South and Maqun are involved in this article. To document the local and short food chains, vendors were contacted on site, and then only the local vegetable supply chain was tracked back and followed to the locations of urban food production (Figure 1).

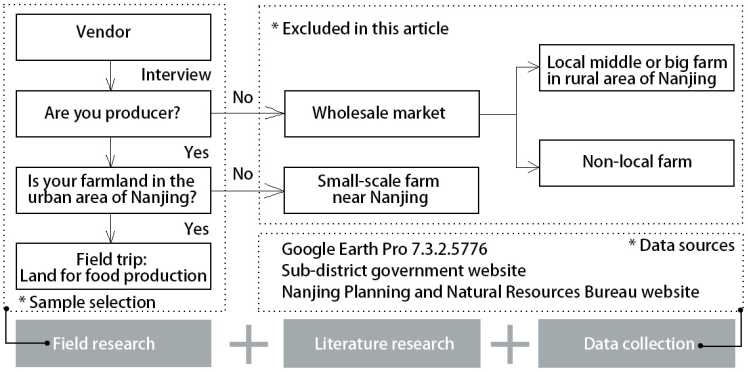


Figure 1. Method of sample selection and characteristic analysis

According to the field trip and literature research, there are four types of urban food production in informal food systems. Both formal and informal land use are involved according to the property of production land (figure 2). Consequently, the food produced in these lands faces different synergies and conflicts. In this article, six sites in Nanjing are selected for analysis of different types of land uses.

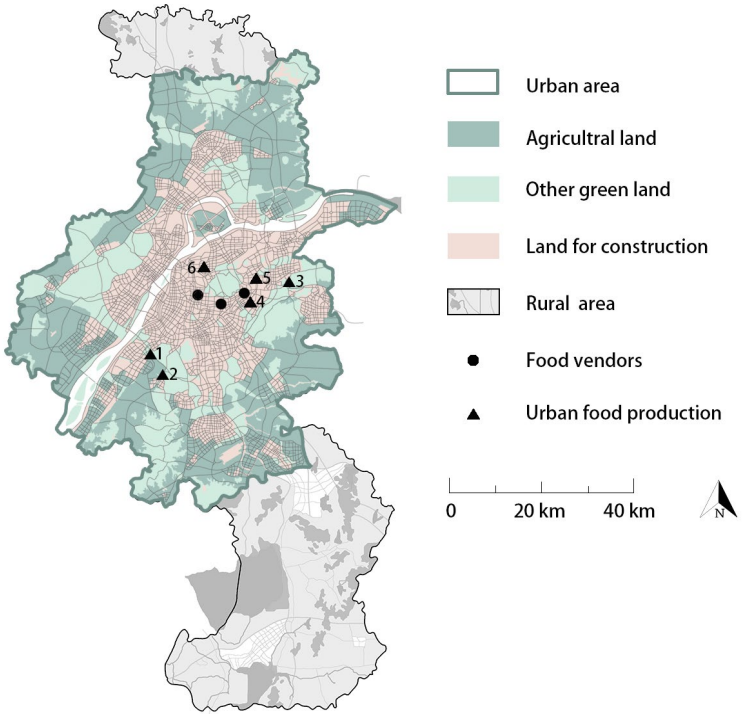


Figure 2. Location of samples (based on data of field trip and Nanjing Natural Resources and Planning Bureau)

Data collection and summary

Vendors in three sub-districts are selected, and the consumers are urban dwellers from nearby residential quarters. Table 2 shows the scope of residential areas which can easily have access to food vendors. A walking speed of 0.5 miles per 15 minutes is assumed, which can be considered as the "high" food access for residents.[13] Fuzimiao sub-district and Xiaolingwei sub-district have the same features that many middle-aged and older people live in the communities. While food stands in Maqun sell products nearly the subway station. So, commuters are the main customers of these food vendors.

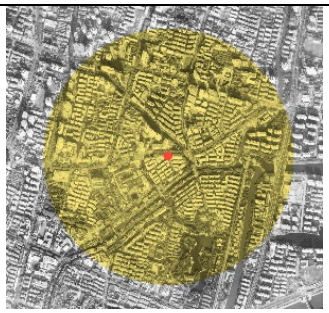
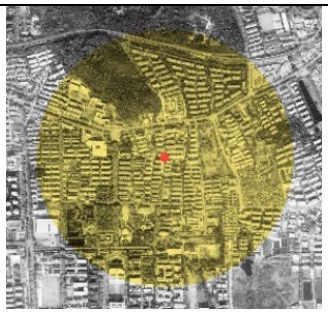
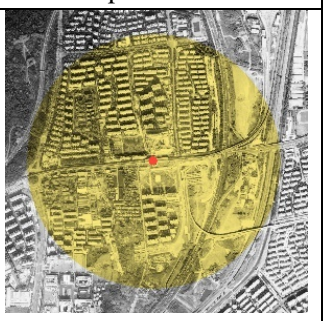
	Jiankang Street in Fuzimiao sub-district	Luohan Alley in Xiaolingwei sub-district	Maqun subway station In Maqun sub-district
Food access for residential areas (yellow area)	 Google Earth Pro 7.3.2.5776 (23.11.2018)	 Google Earth Pro 7.3.2.5776 (23.11.2018)	 Google Earth Pro 7.3.2.5776 (23.11.2018)
Number of samples	1	4	1

Table 2. Samples of the marketplace and residential areas

Formal urban food production

Dongliucun in Qilin sub-district has many greenhouse farms operated by a company while there are only some small-scale lands belong to local farmers. In Guli, there are five villages and thirteen communities. Because of fragmentary farmlands, farmers can hardly implement intensive farming. Banqiao sub-district currently has 612 ha of cultivated land, but soon, 357 ha of arable land will be converted into construction land. Significantly, there is only 34.7 ha farmlands are protected according to the urban planning of the government.[14]

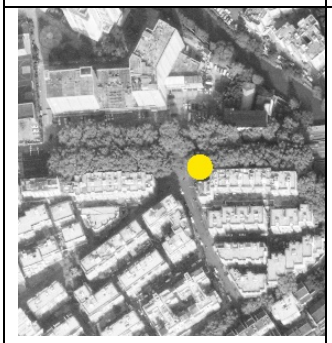
	1	2	3
Type of marketplace	Itinerant vendor stand	Street market	Street market
Image of the marketplace			
Location of marketplace (yellow area)	Jiankang Street in Old Town South	Luohan Alley in Xiaolingwei sub-district	Luohan Alley in Xiaolingwei sub-district
	 Google Earth Pro 7.3.2.5776 （18.12.2018）	 Google Earth Pro 7.3.2.5776 （23.11.2018）	 Google Earth Pro 7.3.2.5776 （23.11.2018）
Image of production land			
Location of Production land (farmland in green area and sample site in yellow dot)	Banqiao sub-district	Guli sub-district	Qilin sub-district
	 Google Earth Pro 7.3.2.5776 （18.12.2018）	 Google Earth Pro 7.3.2.5776 （23.11.2018）	 Google Earth Pro 7.3.2.5776 （18.12.2018）
Area per patch	Around 1000㎡	Around 1000㎡	Around 1000㎡

Table 3. Three samples of formal food production in Nanjing

Informal urban food production

Maqun sub-district is adjacent to the central city, so farmland and villages are gradually transferred to high residential buildings and science and technology parks for large and medium-sized businesses due to urban expansion. This sub-district that used to be the junction of urban and rural areas has changed dramatically. At present, only a small amount of farmland is mixed in the construction area. Vacant land in Maqun community and Huadian community is enclosed by residential quarters, and they are currently cultivated with vegetables by nearby urban residents. Different from Maqun community, the Nanjing government expropriated Shiziba village and its farmland in 2016. However, for some reason, no construction has been conducting on this land. As a result, residents from nearby communities began to grow vegetables on abandoned land. Some people also sell agri-food in their residential quarters.

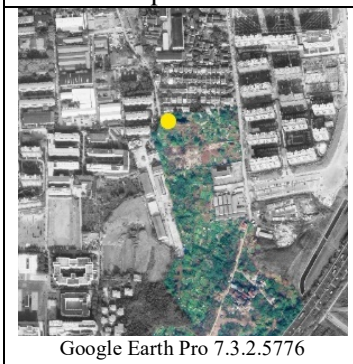
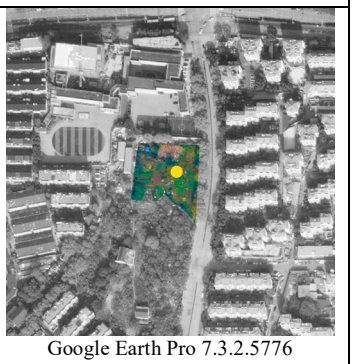
	4	5	6
Type of marketplace	Street market	Itinerant vendor stand	Street market
Image of the marketplace			
Location of marketplace (yellow area)	Luohan Alley in Xiaolingwei sub-district  Google Earth Pro 7.3.2.5776 (23.11.2018)	Maqun subway station In Maqun sub-district  Google Earth Pro 7.3.2.5776 (23.11.2018)	Luohan Alley in Xiaolingwei sub-district  Google Earth Pro 7.3.2.5776 (23.11.2018)
Image of production land			
Location of production land (farmland in green area and sample site in yellow dot)	Maqun Street  Google Earth Pro 7.3.2.5776 (23.11.2018)	Shiziba  Google Earth Pro 7.3.2.5776 (23.11.2018)	Huadian  Google Earth Pro 7.3.2.5776 (16.03.2019)
Area per plot	Around 800㎡	Around 800㎡	Around 500㎡
Total area under cultivation	1.8 ha	4.9 ha	0.54 ha

Table 4. Three samples of informal food production in Nanjing

Typologies and characteristics of informal food systems

Table 5 shows the typologies of informal food systems. The spatial structure of the location of production land is adapted from the research *Agricultural Urbanism.*[15]

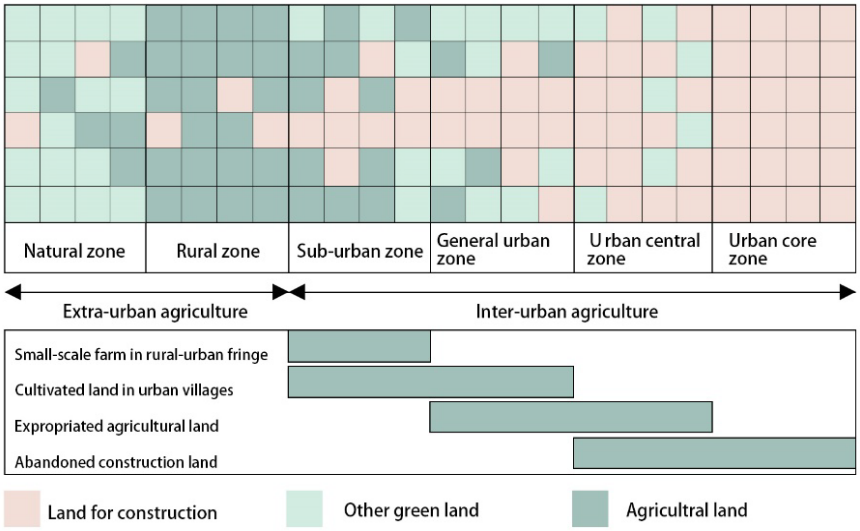
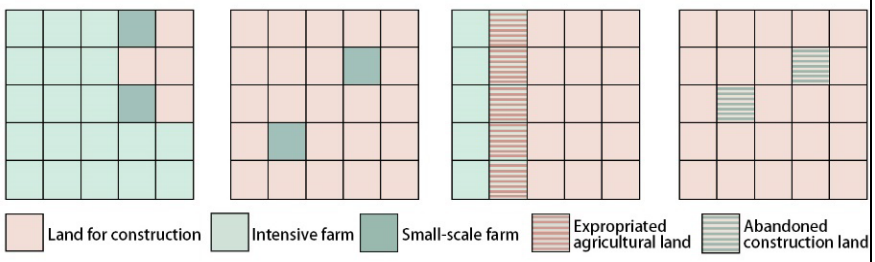
Food chain		Production (Producer)------Marketing (Consumer)			
Products		Vegetables			
Type of food production		Farming in contiguous agricultural land	Farming in fragmented agricultural land	Temporary gardening	Squatter gardening
Stakeholder	Producers	Farmers	Farmers and migrants	City residents and migrants	City residents and migrants
	Land-use right owner	Farmers	Farmers or government	Government or Organizations	Organizations (e.g., real estate developer)
Spaces	Location				
	Spatial combination				
Policies for land use	Current land use	Three-right Allocation	Urban villages	Land expropriation	Illegal use for abandoned land
	Risks	Contradictions between farm contractors and farmers	Urban expansion	The gap time for land use	Management and registration for abandoned land

Table 5. Outlines of main characteristics of four types of urban food production in informal food systems

ASSESSMENT ON URBAN FOOD PRODUCTION IN INFORMAL FOOD SYSTEMS FOR SUSTAINABILITY IN NANJING

Assessment method

Food production is an essential part of food systems, especially in informal food systems. Food producers can be both involved in food production and food marketing. Therefore, it is necessary to connect urban food production to other sectors in informal food systems when it comes to sustainable development. This paper started the assessment principle from organizations including *FOODMETRES*[16], *American Planning Association*[17] and *Milan Urban Food Policy Pact*[18]. Assessment indicators (Table 6) were developed, which can apply to food production in informal food systems.

A: Environmental dimension	B: Social dimension	C: Economic dimension
A1: Eco-efficiency of resource use	B1: Food safety and human health	C1: Generating employment along the food chain
A2: Reduction of pollution in agricultural produce	B2: Food quality (freshness, taste and nutritional value)	C2: Affordable food for ordinary people
A3: Reduction of transport distance and emissions	B3: Viability of food tradition and culture	C3: Transport efficiency
A4: Provision of ecological habitats & biodiversity	B4: Transparency and traceability	C4: Regional viability and competitiveness
A5: Recycling and waste management	B5: Food security and food sovereignty	C5: Reduction of food waste and harvest losses

Table 6. Indicators for the sustainability of informal food systems in terms of urban food production

Assessment results

Table 7 shows that the benefits of urban food production are more than its risks in every dimension. Especially in the economic aspect, there is only one weakness in urban villages and peri-urban agriculture, while ordinary people can benefit more from urban food production. Furthermore, farming in urban villages and peri-urban areas have more benefits and fewer risks compared with farming on idle land. Environmental conditions such as water and soil in vacant land are worse because of its informality. But in the social dimension, two types of urban food production share a similar situation. The significant reason for these differences is the property of the land, so planning and supervision are crucial in informal food systems. These risks can be largely avoided through the attention and help of other organizations.

		Formal urban food production	Informal food production
Risks	A	A1: Chaotic land use	A1: Bad water management and reuse A2: Pollution of water and soil A5: Bad recycling of kitchen waste
	B	B1: Without safety guarantee	B1: Without safety guarantee
	C	C4: Low regional competitiveness	/
Benefits	A	A2: Less pesticide A3: Short transport distance A4: Local agricultural species A5: Organic fertilizer	A3: Short transport distance and eco-friendly vehicle A4: Urban greening on wasteland and diverse agricultural types
	B	B2: Local products could provide nutrients needed by local people B3: Traditional food B5: Reduce the influence of natural disasters and flexible food provision	B2: Fresh food and seasonal food B4: High accessibility in cities B5: Self-selected food supplements
	C	C1: Improvement of living standards for farmers C2: No middleman and affordable food C3: High transport efficiency C5: Less food waste and harvest losses	C1: Provide job opportunities for informal employment C2: No middleman and affordable food C3: High transport efficiency C4: Resilient economy C5: Less food waste and harvest losses

Table 7. Results of assessment for urban food production in informal food systems

STRATEGIES OF URBAN FOOD PRODUCTION FOR SUSTAINABILITY IN NANJING

Supports from organizations and government	B1: Without safety guarantee A2: Pollution of water and soil
From official planning to informal planning	A1: Chaotic land use; Bad water management and reuse
Organic urban food production	C4: Low regional competitiveness A5: Bad recycling of kitchen waste

Table 8. Strategy proposing: Improvement of urban food production in informal food systems in terms of risks

Supports from organizations and government

Urban agriculture in China is still a government-led pattern.[19] Moreover, informal urban food production is in a gray area, and its situation is complicated, without policy support or banned. As a result, civic organizations in informal food systems could play a more important role in coordinating the relationship between fragmented small-scale urban food production and the government.

From official planning to informal planning

Informal food systems involve in different actors like informal settlements, informal food production and informal street vendors. Official planning cannot take all these situations into account and build

sustainable informal food systems because of the huge population, temporary food production and changing land markets. As an effective way to improve the sustainability of informal food systems, informal planning is generated by a dynamic, fluid and temporary purpose-oriented network to empower citizens in self-producing public space.[20] It refers to formal or temporary civic associations co-design abandoned public or private (uncultivated) green spaces to new gardens and administrations might support them afterward. Different types of land should link to different modes of planning.

Organic urban food production

Organic farming can be a tool to improve the sustainability of small-scale urban agriculture. Foods produced by some small farmers are not only sold as goods but also consumed by themselves, which are organic without the official certificate. As a result, how to establish the connection and a trust relationship between consumers and producers is significant for small-scale organic urban agriculture. The Farmers' market is currently a form of Participatory Guarantee Systems (PGS) in China. It is a publicizing platform for farms that the purpose is to achieve quality assurance through farm visits and to give it a greater advantage in other business models.

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NEOLIBERALISM AND ITS IMPACT ON BUILT ENVIRONMENT

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INTRODUCTION

In urban development, cities are the primary orbit of the commercialized globalization outgrowth. This outgrowth fundamentally starts with the business protagonists and their ostentatious exploitations, which is not related to planning and design. This development process brings ecological disasters, international politics, cultural differences, and other social and political agitation, which are very unrealistic and mostly deciding by multinational companies. The neo-liberal political movement has the agenda to fortify private and multinational companies and therefore jeopardize the urban politics perspective, design, and post-planning approach taken by progressive planners and urban researchers. In this approach, criticism of urban inequalities or injustice compass the complexity of contemporary urban landscapes. This entire system changes the regular procedure of life and pushes the poor people out of the city, or in other words, this system creates an uncomfortable and expensive urban system for the mass majority.

WHAT IS NEOLIBERALISM

Numerous authors described Neoliberalism in various ways. David Harvey in his A Brief History of Neoliberalism portrayed most genuine way- “I’ve always treated neoliberalism as a political project carried out by the corporate capitalist class as they felt intensely threatened both politically and economically towards the end of the 1960s into the 1970s. They desperately wanted to launch a political project that would curb the power of labor.

In many respects the project was a counterrevolutionary project. It would nip in the bud what, at that time, were revolutionary movements in much of the developing world — Mozambique, Angola, China etc. — but also a rising tide of communist influences in countries like Italy and France and, to a lesser degree, the threat of a revival of that in Spain.

In the United States, trade unions had produced a Democratic Congress that was quite radical in its intent. In the early 1970s they, along with other social movements, forced a slew of reforms and reformist initiatives which were anti-corporate: the Environmental Protection Agency, the Occupational Safety and Health Administration, consumer protections, and a whole set of things around empowering labor even more than it had been empowered before.

So in that situation there was, in effect, a global threat to the power of the corporate capitalist class and therefore the question was, “What to do? The ruling class wasn’t omniscient, but they recognized that

there were a number of fronts on which they had to struggle: the ideological front, the political front, and above all they had to struggle to curb the power of labor by whatever means possible. Out of this there emerged a political project which I would call neoliberalism." [1]

"The same way as the architects under Napoleon created the neoclassical style by renewing with classical architecture forms- columns, triangular pediments, but those initiated the neo-Romanesque style which integrated the rounded archways from the traditional Romanesque architecture but in a contemporary way. Theoretically this should be enough to define the term. After all, neoliberalism reveals a very basic grammatical structure: it is simply composed of the prefix "neo" added to the substantive noun "liberal". David Harvey renders a more precise definition of contemporary neoliberalism that pulls together the policies of Ronald Reagan, Margaret Thatcher and Deng Xiaoping under one title, and includes an analysis of the role of international institutions promoting globalization and free trade. They shared a belief with the other leaders of the international institutions that "liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong property rights, free markets and free trade."[1]

To some extent the concept of neo-liberalism is cloudy and tricky. It became organic and invaded in every single realm of our social life, from cities to labor, from sexuality to race [2]. It has "no fixed or settled coordinates […] policy entailments, and material practices".[3]

Wendy Brown quoted at length her provisional definition of neoliberalism as

"Enacting an ensemble of economic policies in accord with its root principle of affirming free markets. These include deregulation of industries and capital flows; radical reduction in welfare state provisions and protections for the vulnerable; privatized and outsourced public goods, ranging from education, parks, postal services, roads, and social welfare to prisons and militaries; replacement of progressive with regressive tax and tariff schemes; the end of wealth redistribution as an economic or sociopolitical policy; the conversion of every human need or desire into a profitable enterprise, from college admissions preparation to human organ transplants, from baby adoptions to pollution rights, from avoiding lines to securing legroom on an airplane; and, most recently, the financialisation of everything and the increasing dominance of finance capital over productive capital in the dynamics of the economy and everyday life."[3]

NEOLIBERALISM AND URBANISM

According to Foucault, space is the medium and the locus where the intersections of powers and knowledge manifest, develop and reproduce. If space is the 'place' where the neoliberal phenomena operate, cities and urban space become the perfect battlefield for both critically understanding both its operation and on-going power [4].

David Harvey defines neoliberal inefficiencies and subsequent economic disparities as a system of accumulation by dispossession[1]. A process that is spatial in nature and that starts with a spatial gesture of privatization and commodification, wherein all public assets are subsumed as private goods becoming a new source of wealth and capital gain[1]: space in all different form is put into production not only to produce wealth but to produce subject. The neoliberalism in urban area creating a new urbanization which actually producing new shapes and forms regarding the process of neoliberalism and thus image of new city life. As Keil suggests "*urbanization and neo-liberalization are material and discursive processes that lead to real (and imagined) constellations through which modern capitalist societies are being reproduced"*[5].

Neoliberalism is understood as a political rationality that shapes the 'conditions of possibility' for thinking and acting in a certain way[6], we understand it as a form of 'conduct of man' made by a diffuse power that "is embodied in every aspect of discourses, in formal routines, informal practices,

and physical structures" (ibid). Therefore, the production of spaces in the neoliberal cities occurs through techniques, procedures and institutional arrangements in re-combinatorial processes and redeployments. Foucault insists that is made by a series of Dispositif: an ensemble of discourses, institutions, architectural forms, regulatory decisions, laws, administrative measures, scientific statements, and moral propositions[7].

"The norm brings with it a principle of both qualification and correction. The norm's function is not to exclude and reject. Rather, it is always linked to a positive technique of intervention and transformation, to a sort of normative project."[7]

Urbanism is a *dispositif* in itself. A massive modifications and altercation in infrastructures, transportation, communications. These changes not only switched the urban and metropolitan landscape but also controlled and governed the access and the behaviors of urban dwellers. It altered set of modes of production and consumption till the development of new forms of urban 'smart' model[8].

As Keil suggests this new urban dispositif -*"a particular techno-economic strategy which laid the groundwork for novel constellations of firms and workers in 'creative economies', it also prompted heretofore unseen techno-social and techno-spatial constellations […] whose reliance on tech labour markets and (fast-moving, yet often precarious) turbo-consumerism has fed a deregulated explosion of inner city urbanism, sometimes coupled with processes of displacement and gentrification in former inner city working-class neighborhoods"*[5].

EMERGENCE OF NEOLIBERAL URBANIZATION: HIGHLINE AND HUDSON YARDS

The High Line Park runs through Chelsea and Meatpacking from the relocated Whitney Museum on Gansevoort and Washington Streets for nearly a mile before ending at the Hudson Yards site (Fig 1.1). Before the park entered the greater development scheme of the Far West Side, it had existed only conceptually as a community project for the private group "Friends of the High Line," (FHL) founded by Chelsea residents Joshua David and Robert Hammond in 1999 [9] (Fig 1.2).

"The High Line started out as grassroots effort and then major developers got on board and that shifted the focus. The City Planning Department was listening to the major developers while still trying to be community friendly. So, the designer that was selected put the native grasses in and things like that but it wasn't made for the community. It was made for the investment opportunities adjoining the High Line. There was an economic development analysis that determined you could invest in the High Line and make it a park without changing any land use along the corridor. The naturally occurring rate of return would be enough to justify the investment[10]. But City Planning wanted to put that area on steroids and really capitalize on rapid large-scale development and that's what they've done [10]."

"Part of this discussion is to protect the manufacturing base in the community and to protect the meatpacking district. For that we came up with the plan for the High Line where the adjoining properties would remain manufacturing up to the third level, and then above that you could build residential housing and other service type businesses. But we wanted the base of the buildings to remain manufacturing because we felt that would keep the neighborhood at least somewhat dynamic in terms of income characteristics and people who lived in the lower-income buildings would still be able to walk to work and things of that nature. We even asked that the High Line be connected to the new buildings with a commercial first level. So, you could go into the building and down to the street and you would have this connection in the neighborhood. But City Planning said – No we want the High Line to be floating park" So disconnected from the neighborhood. And that's what it is today" [10]. It is always full of tourists from all over the world. "the rich people who bought the lofts and luxury apartments there, they are not going to hang out on the High Line, they are going to jet-set to whatever

points in the world and this is their pied-à-terre [10].” And these doesn’t support and justify the sense of community.

Figure 1.1. High Line with glimpse of Hudson yards
(source: https://www.customnyctours.com/high-line-hudson-yards)

Figure 1.2. Friends of the High Line- Joshua David and Robert Hammond
(source: https://www.learningwithexperts.com/gardening/blog/the-history-of-high-line)

Figure 1.3 Supporters of the High Line, including Mayor Michael Bloomberg (center), celebrate the opening of the park's second section on June 7.
(source: https://www.kunc.org/post/inside-track-new-yorks-high-line#stream/0)

In terms of operating costs per acre, the High Line is the most expensive park in the city, totaling $672,000, which is over 70 times greater than the average city park[11].Loughran, in his 2011 ethnography of the park, describes the High Line as an archetypal neoliberal park, a luxury public space designed to draw tourists and wealthy consumers to Bloomberg's New York (Fig 1.3, 1.4, 1.5)) : "Today's urban spaces are the province of global capital and culture, where the 'community' is transnational and the 'control' is elusive, privatized and panoptic" *(Loughran, 50).*

Figure 1.4 High Line (part, panoramic view), May 2014.
(source: author https://www.kunc.org/post/inside-track-new-yorks-high-line - stream/0*)*

Figure 1.5 High Line-May 2014. (source: author https://www.kunc.org/post/inside-track-new-yorks-high-line - stream/0*)*

High Line Park prognosticates Hudson Yards, literally and mechanically. The way High Line alter and capitalize Chelsea's urban fabric, it remains in Hudson Yards. Particularly, the High Line is an effective example of culture economy which works within extraordinary neoliberal development and create appeal towards capitalistic consumer demography.

Since High Line is officially introduced to the Manhattan cityscape in 2009, it has been a massive economic success. Within 2 years it stimulated $2 billion by new development and generated $900 million in tax revenue (Loughran, 55). The real-estate boom catalyzed by the park and allowed for by the residential rezoning manifested itself in the rapid construction of star architect mega towers by the likes of Zaha Hadid (Fig 1.6) and Frank Gehry, densely clustering and cluttering in and around the High Line, and the rapid appreciation of neighboring land value (103 percent) in an example of the so-called halo-effect of real-estate appreciation[12].

Figure 1.6 Zaha Hadid's Apartment complex adjacent to High Line, July 2020.
(source: author https://www.kunc.org/post/inside-track-new-yorks-high-line - stream/0)

The nature of neoliberal solicitation is by eviction the regular settlement. This development boom succeeded in pushing out the small but established local businesses that had defined the previously industrial neighborhood, namely auto-body shops, warehouses, diners, scrap yards, and gas stations, and with them the working class people who worked at and patronized them[21] *(Loughran, 50).*We can add few more lines and can depict the inner meaning of this entire sustainable development with Jane Jacobs –

"There is a quality even meaner than outright ugliness or disorder, and this meaner quality is the dishonest mask of pretended order, achieved by ignoring or suppressing the real order that is struggling to exist and to be served."

But this wasn't the end of affronting the memory of Jane Jacobs. Hudson Yards (Fig 1.7, 1.8) the biggest real estate development in US history, which is slamming the entire thinking process of affordability and humanity. The development has been dubbed a "billionaire's fantasy city", but it is something more sinister than that. It is a billionaire's reality city. The other 8.6 million us are just character actors in this drama starring the most unbearable people you can imagine [13].

Hudson Yards now in its final form. It is the collection of sixteen towers, glossy and glittering, rise above the surrounding city. Phase one of the project, which opened in March of 2019, is comprised of six buildings, one residential, and the rest mandated for commercial, office, and mixed-use; the "Vessel," (Fig 1.9) a permanent interactive art installation; "The Shed," a performance and cultural space; a one-million-square-foot shopping center, which will house 100 stores and 20 restaurants, and a public plaza with six acres of open and green spaces. The total square footage of this phase is nearly 11.9 million. The second phase, to be completed in 2024, will add an additional 6.2 million square feet to the project and includes a waterfront park, seven residential buildings, an office complex, and a K-8 public school [14].

Figure 1.7 Hudson Yards
(source: https://boxden.com/showthread.php?t=2662527 https://www.kunc.org/post/inside-track-new-yorks-high-line - stream/0)

Figure 1.8 Hudson Yards Plan
(source: https://www.kpf.com/projects/hudson-yards https://www.kunc.org/post/inside-track-new-yorks-high-line - stream/0)

The key personnel of Hudson Yards is Stephen Ross (Fig 2.0). He is a renowned billionaire real estate businessman who construct a total of 5,000 affordable housing units throughout the country by 1980[24]. Stephen Ross may be a billionaire, but he has a social conscience: he has donated hundreds of millions to the University of Michigan; with $30.5 million in 2014 he started the Ross Center for Sustainable Cities with the World Resources Institute; within the NFL (he become owner of the Miami Dolphins in 2009), he spearheaded the Ross Initiative in Sports for Equality,[9,15] "a national nonprofit that educates and empowers the sports community to eliminate racial discrimination, champion social justice and improve race relations." [9,16]

Figure 1.9 Vessel
(source: author)

Figure 2.0 Stephen Ross
(source: https://gothamist.com/news/billionaire-hudson-yards-developer-soulcycle-owner-stephen-ross-hosting-trump-fundraiser-in-hamptons https://www.kunc.org/post/inside-track-new-yorks-high-line - stream/0)

"The narrow margins encouraged Ross to build efficiently and exactingly, while doing public-private work gave him a fluency with government bureaucracy"[15]. Despite his wealth and position of power in the New York real estate world, Ross does not position himself as a Donald Trump figure, as a tough, ruthlessly business-minded man, oriented only toward the accumulation of more wealth and power [9].

However, this personal philanthropy is belied by his history of shady business practices that prioritize profit over low-income communities [9].

In April of 2019, CityLab reporter Kriston Capps published a news which revealed how Hudson Yards was partially financed through a program intended to aid the urban poor. Through EB-5, a government immigration program which enables wealthy foreigners to obtain visas in exchange for real estate investments, Related raised at least $1.2 billion for their project. In theory, EB-5 is designed to stimulate development in impoverished urban areas, and thus requires investment to target an area with a substandard level of employment: “To qualify, Related needed a work-around to bypass the distressed-area requirements—a pass that New York authorities were happy to issue.” Through a “form of creative financial gerrymandering,” which linked the luxury development with public housing projects in Harlem, Hudson Yards was officially recorded as being in a needy area; and thus reaped the benefits of EB-5 [17].

These consequences are indicative of the carcinogenic growth of neoliberal governance. But also, when placed in contrast with Ross’s displayed commitment to social justice, they reveal yet another portrait of the fractured psyche of late capitalism and the paradox of postmodern cultural production.

A, TO BE CONTINUED CONCLUSION

"If design is merely an inducement to consume, then we must reject design; if architecture is merely the codifying of bourgeois model of ownership and society, then we must reject architecture; if architecture and town planning is merely the formalization of present unjust social divisions, then we must reject town planning and its cities," Adolfo Natalini wrote in 1971

I have come to the conclusion that High Line and later Hudson Yards has created and creating an extraordinary place for citizens to live. The neighborhood around High Line has started changing and it still remain. Hudson Yards is an urban luxury camping ground. This is the place where people get everything they need in their daily life including the skyline of the NYC. It is always sad and frustrating to see that people who are rich always get everything they want. Either this class participating in the world or not they will build their own prodigal theatrical where they will be living without any intrusion by the lesser people who actually populated the earth. It is actually Hudson Yards promise to the wealthy New Yorkers. We also can conclude it is a neoliberal promise which is living upon this consumerist capitalist world.

The New York leads the nation in income inequality, its top 1% estimated in 2016 to be earning 45 times more than the bottom 99%. In the city’s new Gilded Age, New York is an economic powerhouse, its 1.6 trillion GDP is the highest in the nation.[18] More than half of all its residents can’t afford their rent, and the city has more homeless residents at any point since the Great Depression.[19] And the recent phenomena is the COVID-19 pandemic, already over 20 million people are unemployed and situation is getting worse and majority of this population is now in the anxiety of getting evicted because of not able to pay the rent. But Hudson yards is still an ongoing.

It is the time to reject every neoliberal development of built environment which doesn’t speak for the mass majority. Protests and vociferation over the negative effects of gentrification and uneven development are emerging within the global urban community. This is a combat to regain the right of the poor and it is just started.

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SPATIOTEMPORAL INVESTIGATION OF EUGENE, OREGON FROM 1856 TO 2018: A SPACE SYNTAX AND BUSINESS PATTERN ANALYSIS OF AN AMERICAN CITY

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INTRODUCTION

Eugene, officially established in the 1850s, is a mid-sized city in Oregon, USA, with a population of approximately 170,000 occupying an area of over fifty square miles within its Urban Growth Boundary.[1] This paper investigates Eugene's morphological evolution by presenting the study in four steps. First, is an examination of the city's physical transformation (size, population, and street network; second, is the spatial characteristics of the street network through space syntax analysis; third, is the transformation of business patterns by locating the businesses; and fourth, is the visual assessment and statistical analysis of the relationship between the space syntax attributes and business locations.

LITERATURE RESEARCH

This study relies on literature related to space syntax theory, space syntax and urban transformation, space syntax and American cities, and retail business patterns in American cities. The scope of space syntax is vast, and the focus in this study is about space syntax at the urban scale. While space syntax derived out of the study of "space and society" at the building and small settlement/village scale in earlier studies (Hillier and Hanson's studies in the 1970s leading to the Social Logic of Space in 1984), space syntax researchers have maintained the fundamental principles throughout the field's evolution. In their seminal 1984 space syntax work, Hillier and Hanson, primarily contend that the social knowledge of any urban society is inherently embedded within its spatial network or the network of the streets, open spaces, and built forms.[2] Specifically, the authors argue that the spatial network represents any urban area in the form of "spatial expression of the urban system" that helps to define the "social antecedents and consequences of the spatial form" in cities and buildings.[3]

In 1996, Hillier published a critical paper, "*Cities as Movement Economies*," where he forwarded the principles of the relationship between the street network and urban uses, fundamentally asserting that the structure of the urban grid, land distribution, and densities in historically evolving cities are always related to each other, all governed by the movement, which is influenced primarily by the grid/street structure.[4]

There have been several authors who used space syntax to examine the historical transformation of a single city. This study, however, is distinct since it conducts a space syntax analysis of an American city and tests its relevance with the business patterns. Among the space syntax researchers, Sam Griffiths has most prominently argued for the potential of space syntax theories in spatiotemporal studies of a city. For example, through his works on Sheffield's transformation of 1750 to 1900, the author has argued for a more integrated and multifaceted research framework and demonstrated three possible fields of investigations: syntactical growth processes; syntactical, morphological histories; and spatial-locational histories.[5] Other notable studies (outside the US) include Kigawa and Seo's (2009) study of Japan, Shpuza (2009) on the Adriatic and Ionian regions around Italy, Feng, Wang and Rao (2012) on Macau, Dino and Griffiths (2017) on Tirana, Hachi and Lagasse (2017) on Paris, and Hidayati, Yamu and Tan (2019) on Jakarta.[6] In the past, several researchers have studied American cities using space syntax; some notable works include Howsley's (2003) work on gentrification in Portland, Haynie, and Peponis (2009) on the morphology of Atlanta, Psarra (2013) on the evolution of Detroit, Berhie and Haq (2015) on gridded and non-gridded cities (Pittsburgh and Lubbock), and Major's (2018) book on the syntax of the American Grid.[7] However, a study connecting aspects of spatial and economic morphology and socio-political/cultural forces for a single American city across its entire history is missing.

Brian J. Berry's studies on the retail business patterns of American cities beginning the 1960s is integral to this research. For example, through a study of the residential structure of Chicago, Berry argued that the business structure of American cities primarily includes ribbons, specialized functional areas, and a hierarchy of business centers (metropolitan CBDs, major regional centers, community centers, neighborhood centers, and isolated convenience stores and street corner developments) [8]. In this context, this study contributes to the knowledge of the historic transformation of the business patterns in American cities. Additionally, works on American urban history from the perspective of city design and planning; specifically, those of Robert Fogelson and Alison Isenberg has been influential to this study.[9]

RESEARCH DESIGN

The variables involved are the number of businesses along each street segment (dependent variables) and the space syntax measures of each street segment (explanatory variable). The categories of businesses included Retail, Service, Industrial, Institutional, and Entertainment. A total of 600 businesses were recorded for 1930, 1,500 for 1970, and 2,400 for 2018. The space syntax analysis method used was Angular Segment Analysis (ASA) to measure Integration and Choice and represented as Normalized Angular Integration or NAIN and Normalized Angular Choice or NACH, respectively. ASA considers street segments (which is a portion of the street between every two intersections) as the smallest unit of the spatial system, which makes the analysis very accurate and easier to use for further calculations of the spatial system.[10] Other space syntax measures used are Synergy, Intelligibility, and NACH vs. NAIN (which is explained in the "findings" section).

The **primary data** comprises of the maps and location of businesses.[11] The printed street/city maps of Eugene for the years 1856, 1890, 1930, 1970, and ESRI ArcGIS maps and layers for 2018.[12] The 1856 map was obtained from the document "The Geography of Eugene" (1990) by Alvin Urquhart[13], 1890, 1930, and 1970 maps were obtained from the University of Oregon Libraries and 2018 GIS "Lane County 2011 road-centerline GIS layer" from the UO Libraries. The business addresses were taken from the City Directories, published by Korstad's Service for 1933, Johnson Publishing Co. for 1970, and Yellowbook and Eugene Chamber of Commerce's online list[14] for 2018.

The relationship between the syntax and business variables can be (1) assessed through visually observing the map to identify patterns and (2) computed through regression analysis to identify if a significant relationship exists. The steps taken for core analysis were as follows:

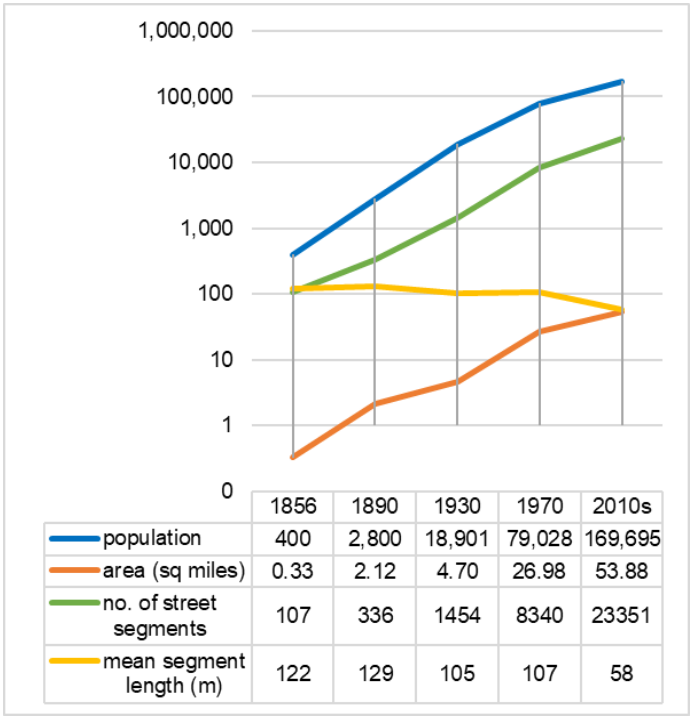
1. For space syntax analysis, locating businesses, and computation of relationship
    a. make axial maps from the printed street maps in ESRI ArcMap
    b. conduct Angular Segment Analysis (ASA) using the axial map in DepthmapX
    c. export to ASA map to ESRI ArcMap for further processing
    d. geocode business addresses taken from city directories in ESRI ArcMap
    e. prepare maps with both space syntax analysis and the geocoded businesses (as dots)
    f. compute regression analysis between street network values and business numbers for each street segment.
2. For the physical transformation of Eugene
    a. Digitize scanned maps by georeferencing them to the real-world layer in ESRI ArcMap
    b. Utilize the same ASA maps for street transformation maps

FINDINGS

The findings are divided into two parts. The first part discusses Eugene's physical growth (in terms of population and size) and morphological growth (in terms of the street network). The second part discusses Eugene's spatial and economic transformation and the relationship between them. The analyses make a distinction between the years before the second world war (represented by 1856, 1890, and 1930) and after (1970 and 2018).

Physical transformation

While there was a gradual growth until the end of WW2 in size and population, the city grew dramatically in the post-war decades (see figure 1). Physically, between the 1850s and the present, Eugene grew from a small town of a few hundred people to a mid-sized city of around 170,000 people occupying fifty square miles. The city grew from less than one square mile to around five square miles between the years 1856, and 1930 and the population grew from a few hundred to 20,000. In the year 1950, just after WW2, its population was around 36,000 and occupied almost nine sqm. Between 1960 to 1980 (period of highest growth), its population grew from around 51,000 to more than 105,000. In the same time, the area increased from fifteen to thirty-five sqm in 1980 (mostly attributed to rapid annexations). In terms of its **street morphology**, the number of street segments grew from a few hundred in 1856 to more than 23,000 in 2010 (figure 2). The mean segment length, which had not changed drastically till the 1970s, reduced to less than sixty meters by the 2010s, which can be attributed to the peripheral subdivisions that were characterized by shorter curved streets. For this study, the intersection of Willamette street and Broadway representing the center of downtown is referred to as "W-B intersection."



	1856	1890	1930	1970	2010s
population	400	2,800	18,901	79,028	169,695
area (sq miles)	0.33	2.12	4.70	26.98	53.88
no. of street segments	107	336	1454	8340	23351
mean segment length (m)	122	129	105	107	58

Figure 7. Transformation of Eugene's physical and morphological characteristics.

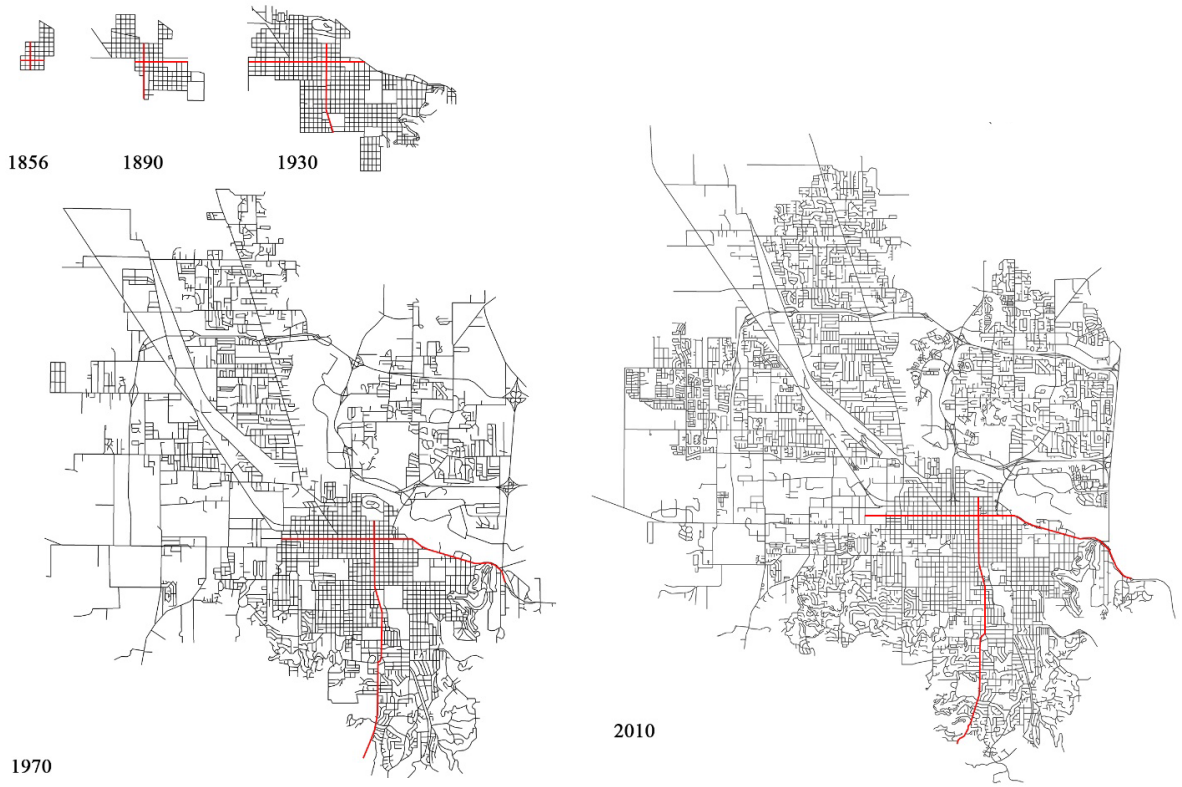


Figure 2. Transformation of Eugene's street morphology. The red lines represent Willamette street (north-south) and Broadway (east-west).

Spatial and Economic morphology transformation

This section is divided into two sections related to Eugene's transformation through discussions of (1) space syntax (2) business location and numbers (3) the relationship between syntax and business variables.

Space syntax analysis

Integration (NAIN) and choice (NACH) correspond to the two essential elements in any trip (movement), which are (1) selecting a destination from an origin (integration) and (2) choosing a route and so the spaces to pass through between origin and destination (choice).[15]

Figure 3 shows the NACH maps for Eugene's five years. The black circle represents the downtown core centered around the W-B intersection. Already by 1890, the foreground movement network (of red-colored streets) within and around the current downtown core is visible. Additionally, the network of streets with low NACH values (blue, green) is visible in the periphery. By 1930, streets facilitating city-wide movements have formed, and the W-B intersection is at the center of this network. A few significant streets in the eastern and southern areas going both north-south and east-west directions stand out as well. By 1970, the city has grown considerably, and the hierarchy of major arterials formed by the highways and other major streets is visible. These major streets spread in all directions and either penetrate (south) or circle (north) the residential areas. The structure has not changed drastically by 2018; few changes are (a) the residential area between the major street has grown and (b) some major streets have formed within and around the network formed by the major streets. In terms of the transformation, the mean NACH values increased from 0.99 to 1.03 between 1856 to 1930 (see figure 4). The values then decreased dramatically for the years 1970 and 2018 (0.89 and 0.85). The decline in NACH values means that as the city evolved during the second half of the twentieth century, the newer streets were not primary facilitators of through movement across the city, but instead were shorter residential streets.

According to the NAIN map (figure 5), the dominant role of north-souths streets compared to east-west streets is visible during the city's earliest years. By 1930, the downtown core stands out as the integration core, and outside the central area, the north-south streets in toward the east are acting as major integrators. According to space syntax theory, the network of major streets (red color) forms the network of destinations. For 1970, the central area forms a distinct integration core consisting of both vertical and horizontal streets. 11th avenue stands out as the major east-west integrator extending to the western edge of the city from the center. Outside of the central area, toward the north, known highways are the major integrators and form a foreground network of potential destinations. The lack of integrating or potential destination streets in the residential zones outside the central area is visible. In the 2018 map, the role of the more robust highway system and known major arterials in integrating the urban system is further clarified.

Additionally, toward the southeast of the central area, i.e., south of the university, a secondary integration core has been formed. The mean NAIN values for earlier years 1856 (1.66), 1890 (1.61), and 1930 (1.5) are not much different. However, the values declined dramatically by 1970 (0.99) and continued to the present (0.77) (figure 4). This discrepancy shows that the post-war street developments facilitated in reducing the overall integration of the system. A similar finding revealed in the NACH maps previously is echoed in the NAIN maps as well—that the new additions were largely peripheral residential areas that were segregated from the central/pre-existing fabric of the city.

To further understand the nature of spatial transformation, the relationship between the syntax measures the analysis incorporated the computation of NACH vs. NAIN, which shows the correlation between streets used for movement and streets that are destinations. According to the regression

analysis, the correlation was significant (p-value < 0.01) for all years studied. The R^2 values, however, show that the strength of the relation between NACH and NAIN dropped during the second half of the twentieth century, i.e., from 0.43 in 1890 and 0.48 in 1930, to 0.32 in 1970 and 0.13 in 2018. This decline indicates that after the mid-twentieth century, a distinct network of destinations and movement streets were formed instead of a more uniformly differentiated network of movement and destination throughout the urban system.

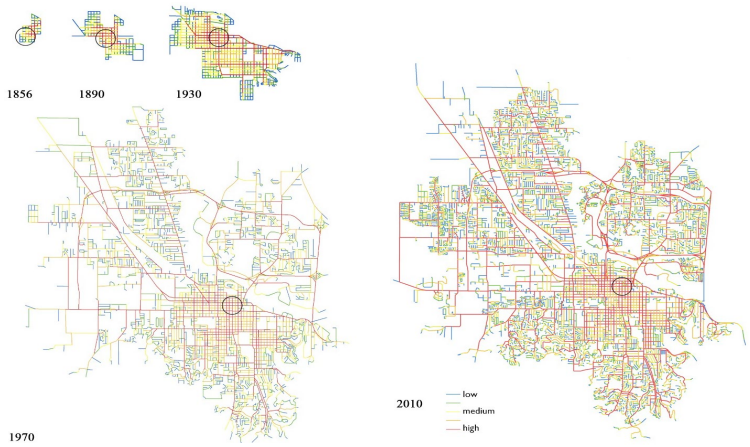
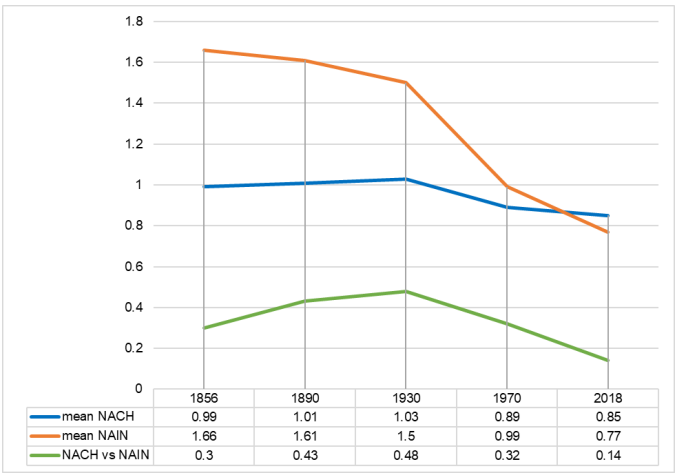


Figure 3. NACH maps



	1856	1890	1930	1970	2018
mean NACH	0.99	1.01	1.03	0.89	0.85
mean NAIN	1.66	1.61	1.5	0.99	0.77
NACH vs NAIN	0.3	0.43	0.48	0.32	0.14

Figure 4. Transformation of Eugene's street network (space syntax) characteristics.

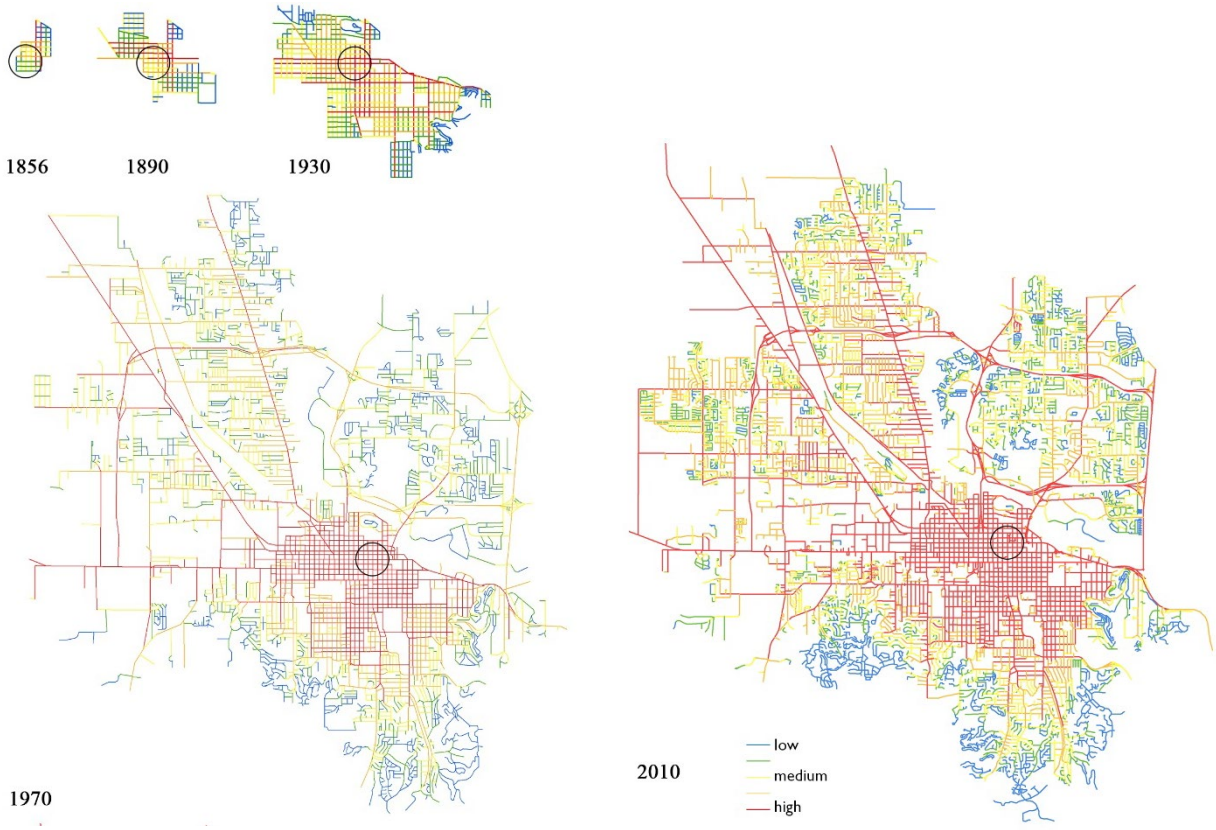


Figure 5. NAIN maps

Business patterns

Figure 6 shows the intensity of businesses or business patterns, i.e., the total number of businesses along each street segment for the years 1930 to the present. Data for 1856 is not available, and for 1890, only the intersection is available, which is not consistent with the analysis. As seen in the 1930 map, business-heavy streets were concentrated in the downtown area while smaller business centers were scattered throughout the city (blue streets representing 1 to 5 businesses along each segment). Both characteristics are maintained in 1970 as the city grew, and two types of locations of business concentration outside the central area become clear (1) along major highways and (2) scattered in the residential communities. By 2018, while the central area is still the dominant business center, much higher numbers of smaller business centers can be found across the city. One of the key differences compared to 1970, however, is that there are only two street segments with more than twenty businesses whereas in 1970 there were at least fifteen such street segments.

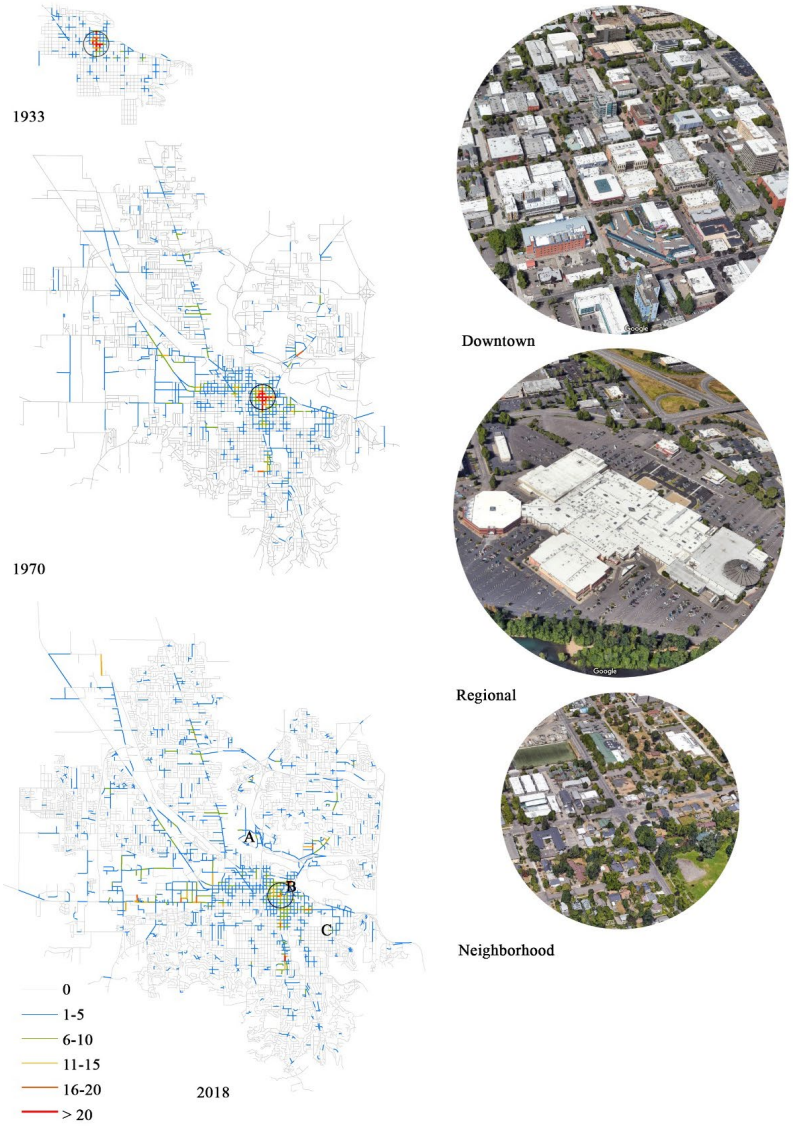


Figure 6. Business intensity (left) and types of centers (right). The letters A, B, and C, in the 2018 map shows three different kinds of business centers—which are regional, central/downtown, and neighborhood, respectively.

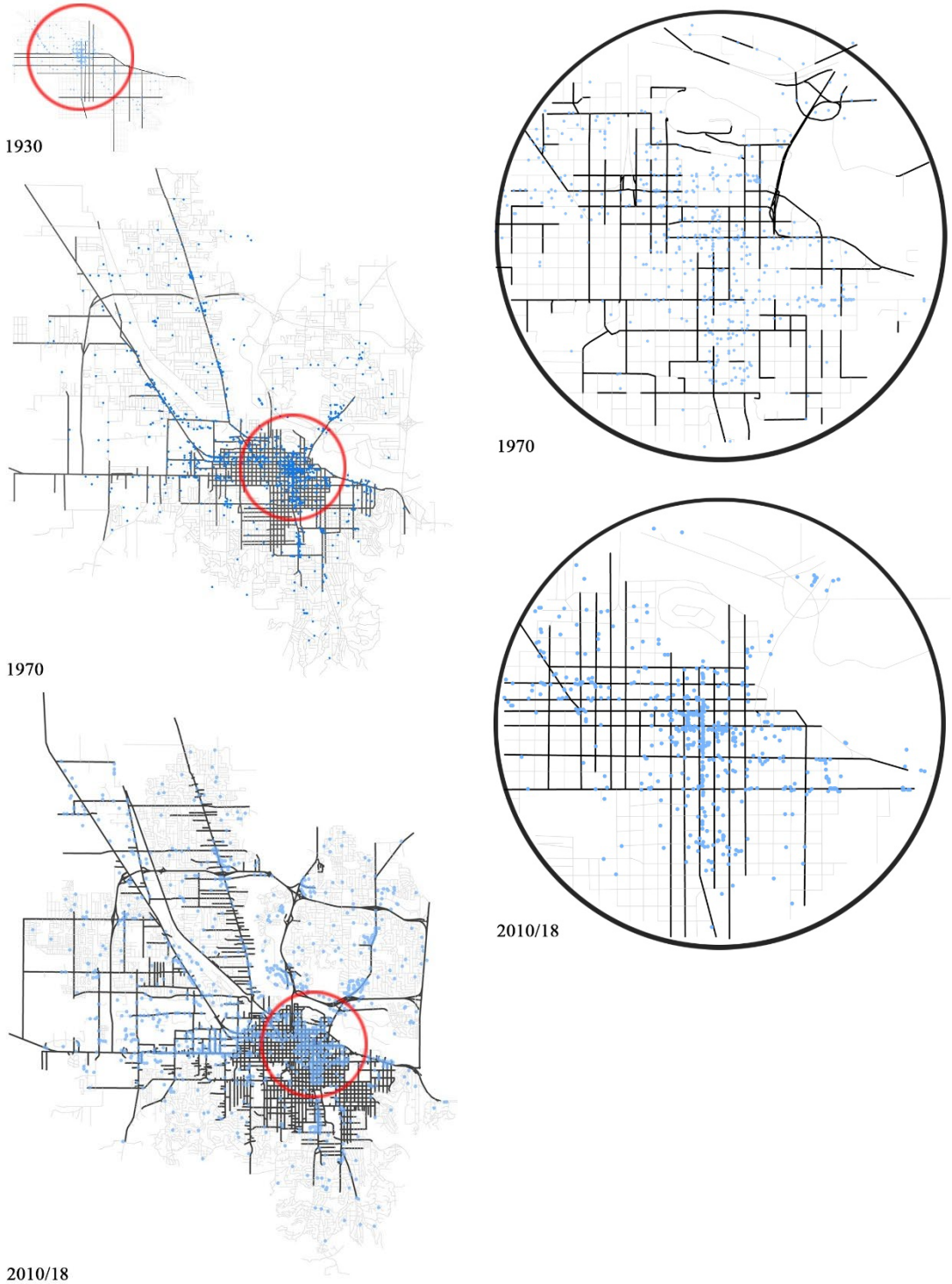


Figure 7. Map of the business patterns (blue dots) and streets with the highest integration values (left). Enlarged view of the one-mile area for 1970 and 2010 (right), which shows that even within the integration core, the major integrators have a high share of businesses alongside them, whereas the "lighter" streets are low in business numbers

Relationship between syntax and businesses

Having discussed Eugene's syntactic and business pattern transformations individually, the next step is to test whether a significant relationship exists between the two sets of variables. In other words, is the street network configuration related to the distribution of businesses? Since the most relevant syntactic

measure that relates to the location of destinations is integration, the regression analysis was conducted between NAIN and the number of businesses for each street segment. First, based on a visual assessment of the maps (see figure 7), most businesses are located alongside major integrators, and only a low proportion are distributed in other streets. *Second, the result of* ***regression analysis*** *has shown that a significant relationship (p-value < 0.01) exists between syntax values and number of businesses along the respective segment for all three years studied—1930 (R^2 = 0.03), 1970 (R^2 = 0.1), and 2018 (R^2 = 0.08).*[16]

CONCLUSION

For more than a century, between the 1840s to the early-1950s, Eugene grew gradually, after which the city's growth exploded. The 1960s and 1970s were the decades of highest growth with peripheral suburban growth and a decline of the central city being the two major trends. These growths began in the early 1950s with the city's ambition to become a regional center. As shown by the syntax maps, this change is primarily attributed to the newer residential zones that were formed between major arterials but were 'syntactically' segregated from the central area and well-connected street network within the system.

NOTES

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CLOSED LOOP OBJECT MAKING IN AND FOR COMMUNITY

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INTRODUCTION

The way objects are made, used and discarded is under significant pressure due to the rampant efficiency of industrial production processes. Large qantities of objects are made from virgin material, transported over large distances, used for short periods of time and finally, without proper end-of-life solutions, discarded into waste streams. Circular or closed loop systems provide a possible solution to the waste problem inherent in current systems of object making. Embedding a circular approach into a context defined by community may provide a way to view object making in a different way. This paper explores how object making that incorporates, material sourcing, material transformation and specific end-use application can be imagined within, and for, a defined community context.

THE CHANGING WAYS OF OBJECT MAKING

Object making was dominated by making by hand until the industrial revolution introduced a new way of making facilitated by machines, factories and division of labour. Object making in this new context would go on to become known as industrial manufacturing. The impact was significant and widespread, economies that were largely based on agriculture transformed to became industrialised. One of the key differences between the type of making prior to the industrial revolution and the new manufacturing was that objects could now be made in large quantities. During the twentieth century as demand for manufactured goods grew, so did nationally based manufacturing sectors. Then globalisation forced the manufacturing landscape to change. Many did not survive the competition, those that did, would go on to be recognised as advanced economies because of their extensive manufacturing industries[1]. Manufacturing is widely understood as an important contributor to skills, learning and commercial activity. One person working in manufacturing delivers more economic benefit than any other sector[2] and, manufacturing stimulates innovations in other parts of the economy[3]. The success of manufacturing however has come at a price; increased production equates to increased consumption which equates to increased waste.

The increase in mass produced products corresponds with a decline in manufacturing in many western countries and an increase in other countries like China[4]. In Australia for example, manufacturing contributed less than 6% of GDP in 2018, down from a high of nearly 30% in the early 1960s[5]. There are signs however, that manufacturing in the early part of the twenty first century is undergoing somewhat of a revival. This shift is happening in two ways, the first is a return to countries of origin,

also known as backshoring, and the second is a move from making in the urban periphery, back into urban centres.

Up until the mid to late twentieth century many nations were able to provide many of the objects their societies needed. It was also common for many manufacturers to locate themselves across the urban landscape. Then, as costs rose the pressure on manufacturers forced them into more affordable industrial zones usually located on the urban periphery. Around the turn of the twentieth century manufacturing was further rationalised into foreign locations where costs, particularly those associated with labour were lower[6] [7]. This process is referred to as offshoring and is a strategy widely adopted by Western manufacturing companies. Offshoring involves fragmenting a company into smaller parts and separating components into regions where reduced costs enable a company's competitive advantage to be maintained[8].

There are indicators however, that companies are re-evaluating the importance of where their business activities are located[9] [10]. Backshoring is occurring because labour costs in those previously cheaper locations have increased[11], currency values across economic borders are volatile[12], the threat of company intellectual property theft remains[13] and poor quality of offshore production continues[14] [15]. The advent of Advanced Manufacturing Technologies (AMT) is another factor motivating manufacturers to backshore their activities. An MIT task force on production and innovation proposed a definition of AMT as the interface between innovation systems and industrial production[16]. AMT represents increased control brought about by the digitization of equipment used in design, manufacture and/or handling of a product, examples include CNC machining, 3d printing and robotics[17]. AMT enables increased productivity and efficiency and a reduction of the benefits of low wage economies by reducing the share of labour content. AMT does not foster globalisation and fragmentation of production, but rather it leads 'to a re-concentration of production activities'[18] and a heightened importance of regional and local value chains[19]. The contribution of AMT to backshoring also recognises that it has influenced a return of manufacturing back to an urban context. While urban manufacturing suffered during the first wave of globalisation, the twenty-first century is experiencing favourable conditions to see manufacturing return to high density urban areas[20]. Next generation urban manufacturing, however, will be different, it is likely to be small and discrete, the focus will be on fast changing products, made to high specifications, customised to individual requirements and made in short runs[21].

The disruptive nature of AMT is perfectly positioned to support the radicalisation of how objects are made. AMT is not the dirty and noisy activity epitomised by large factories of the last century and it will allow for quieter modes of production that will be more suitable to high density environments[22]. Producing within the city is beneficial from an ecological[23] and social point of view and being located in the urban context offers a direct proximity to customers and highly qualified staff[24].

Object making in the city

Some object making activities have continued to operate in urban contexts because they depend on the businesses and residents of the city for their survival[25]. Examples include small fashion houses, jewellery studios and bespoke furniture makers. In recent years there has been return to urban contexts by other making based activities such as small scale brewing companies[26] and digital fabrication workshops such as Fab Labs[27]. These urban based makers distinguish themselves through their modest scale, ability to customise and strong community connection. The sense of community for these urban based makers is fundamental as it provides a platform for members to feel connected. Being a part of a community, whether it is a maker community or not, is essential to our wellbeing. A community provides a sense of belonging in the increasingly insecure conditions of contemporary life[28]. A

community supports relationship building, sharing and positive reinforcement, they are commonly defined by boundaries[29] which results in a social capital that makes actions possible[30]. Fab Labs started as a kit of tools and machines that the Center for Bits and Atoms from MIT provided to a local community in inner-city Boston, as part of its outreach programme[31]. The social capital that originated with this initiative was nutured and is now evident in the many Fab Labs located around the world.

It was the observation of how communities function that revealed the potential for social capital to drive change in material use and object creation. The community is well positioned to create a unique framework to address the linear model currently dominating the way resources are used. Additionally, the community provides new ways to view the challenges associated with scale and location.

A circular approach to object making can address the shortcomings of the linear model. A circular or closed loop model, is based on the principles of; designing out waste and pollution, keeping products and materials in use as long as possible, and establishing regenerative systems at an objects end-of-life. A circular or closed loop approach is one strategy that can reduce the environmental impact of manufacturing[32]. The linear model of take-make-dispose is replaced by a system that is *restorative by intention*[33]. The circular approach replaces the concept of end-of-life, which assumes a definitive end, to one that seeks out renewable energy, eliminates the use of toxic chemicals which complicates the recycling process and designs out waste through superior use of materials, products and systems[34].

Combining the notions of community and the circular or closed loop approach presents a possibility to view object making and associated challenges such as material management differently. If instead of considering the volumes of virgin material required by large scale manufacturers we reframe object making in a community context to consider using only the material that enters a given community, then the challenge of sourcing material becomes very different. And rather than replicate the scale of existing mass manufacturing, the scale of object making is redefined to fall within the constraints of a defined community, then the object making processes can also change. Is it feasible then to consider a model of object making that is informed by what a community consumes in terms of materials and what it needs in terms of objects? Additionally, what are the benefits of making in close proximity to where the community uses their objects? And what is the impact on the object in a context where the activities of production are confined to what the community makes available?

WORKING WITH COMMUNITY

There is an important urban dimension to the idea of community that members are physically within reach of one another[35]. The concepts of proximity and the human scale were fundamental ideas in the decision to work with a community within a defined urban context. Working with and for a community will enable this study to position itself between two opposing scales of activities. On one side, large scale manufacturing industries and material waste companies, on the other, individual object makers and waste material recyclers. The scale of a community enables a model of activity that is feasible in terms of material collection and processing and the creation of object-based outcomes that are informed by and satisfy the needs of that community. Working in this way allows for a circular or closed-loop object making approach to be designed and tested. A city-based university was seen as a suitable candidate community for this study. Its proximity to the urban centre and its scale provided a suitable platform and it is also where the author is employed. A design-led approach was adopted that was practitioner led. Design-led research is a knowledge-directed research methodology that integrates design practices, processes and tools to investigate what can be learned through practitioner action[36]. The city-based university is a medium sized public university and like other similar sized organisations, is a microcosm. Its core activities of education and research are supported by other services and activities such as commercial retailing, sporting facilities and a wide range of

social and cultural groups. Material use and material flow within the community was studied to inform the practical component which will explore which material is most suited to being reused and how the transformation from waste material to usable object can be achieved.

THE COMMUNITY, THE MATERIAL, THE MACHINE, THE OBJECT AND THE PROCESS

The Community

During teaching periods, thousands of people move throughout the university campus, they are most visible at food and beverage outlets and on principle walkways between campus buildings. Observing people at these locations revealed a not so surprising insight; a high occurrence of takeaway, single-use packaging. Single use packaging was observed being carried by people on campus, but also in bins, on tables and discarded as litter. Single use packaging is a problem because it is cheap, convenient and therefore widespread. The lack of tailored solutions to the diverse range of single use packaging means it is a dilemma, but it also represents an opportunity. Packaging material is a potential resource that if collected, reformatted and reused on campus, could represent significant savings in new object purchases, waste management and transport. Determining which of the single use packaging would be suitable for further investigation was driven by pragmatic concerns around contamination.

The Material

Single use coffee cup lids represented the most promising potential. They are easily distinguished by their form, they are limited in their colour variations, usually black or white, and they are marked with the material recycling identification number. The next challenge necessitated a collection strategy. Boxes, specially marked with clear instructions were positioned at various locations on campus; in photocopy rooms, lunch rooms and adjacent to other waste bins. Community members fully supported the collection process and contributed by aiding in collecting and encouraging others to participate. What to make using the coffee cup lid material involved an exploration into the complexity, size and function of possible objects. Contemporaneously an exploration into the various making processes available at the university was conducted. A variety of technologies were found but the most suitable was the robot arm printer. This technology locates a plastic extruder on the end of a robotic arm. The robot arm extrudes plastic in accordance with a 3d digital model, in a similar manner to how most desktop 3d printers work.

The Machine

Co-evolution of design exploration and robot test prints enabled one to inform the other. As it became clear that some geometries were not possible to print, they were eliminated. And objects that were previously considered unsuitable re-entered consideration. Like other manufacturing processes, the robot arm extruder is constrained by certain geometries, size, speed and quality of resolution, some of which were informed by characteristics of the coffee cup material. It became necessary to consider the physical limitations of the coffee cup lid material - polystyrene (PS). PS is relatively brittle, but it is used widely in single use cutlery, cups and glasses, disposable shavers and toys. It is a versatile material, it can be injection moulded, extruded, expanded and vacuum formed, (coffee cup lids are vacuum formed). Some of the challenges of PS were uncovered and will be detailed below.

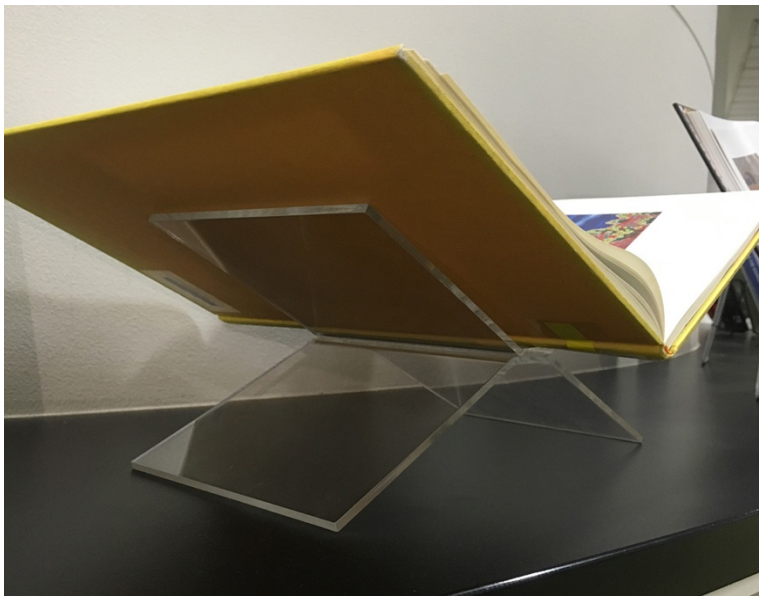

Figure 1. Bookstand

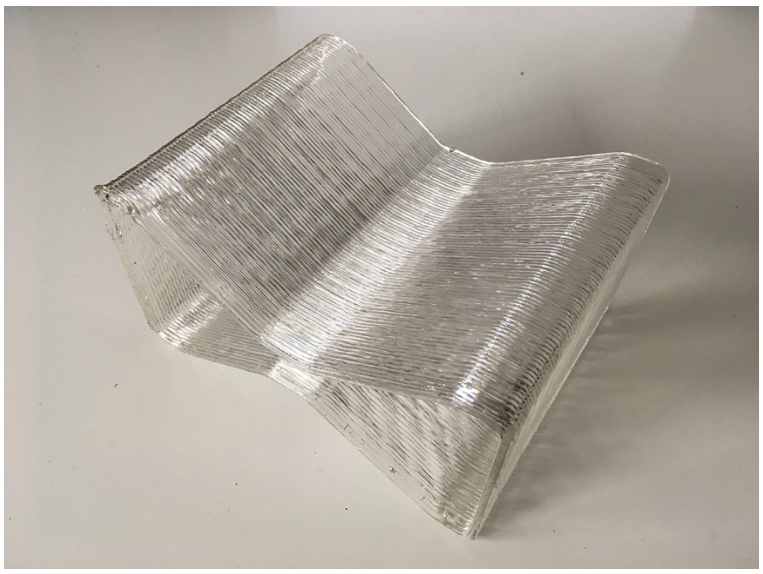

Figure 2. Test print

The Object

A short list of objects was identified, this was dominated by stationery items including; folder stands, file separators, bookstands, paper trays and leaflet holders. These items were selected because they were made from a single material, their functional requirements fell within the performance characteristics of PS and their geometries were relatively simple. Of these items, the bookstand was found to be the most suitable object as it satisfied a number of the key criteria determined by limitations of the robot arm printer. The bookstand is an object used commonly in libraries and bookstores to display books. Its primary function is to support the book in a horizontal and open format (see figure 1). To accommodate different size books, it is available in different sizes, it is made in a variety of materials including clear acrylic, polycarbonate, timber and sheet metal. Some versions are made from two interlocking halves others have the two halves glued or screwed together. In line with the constraints of printing using the robotic arm extruder, a design for a bookstand was

developed. Once a final design had been determined a three dimensional model was created using CAD. A test print was conducted to verify the suitability of the digital model and final design, this was printed using virgin plastic (see figure 2).

Figure 3. PS Shavings

Figure 4. PS Pellets

Figure 5. Delamination

Figure 6. Shrinkage and bowing

The Process

The collected PS lids needed to be converted into pellets as this is the most efficient way to feed material into the extruder. The first step was to put the PS through a material shredder to create shavings (see figure 3). The shavings were then put through an extruder to create a spaghetti like form, which was shredded again to produce PS pellets (see figure 4). Now armed with pelletised PS an attempt to print the bookstand was conducted. Unlike the test print using virgin material that was successful on the first attempt, numerous tests were required using the pelletised PS. Issues emerged that impeded the printing process, this included delamination between layers (see figure 5), uneven shrinkage and bowing (see figure 6). Pure PS is not commonly used in 3D printing, it is however used widely as a blended material such as Acrylonitrile Butadiene Styrene (ABS). Following a number of tests, a successful combination of print temperature, layer height and print speed was found which enabled a complete print to be achieved (see figure 7).

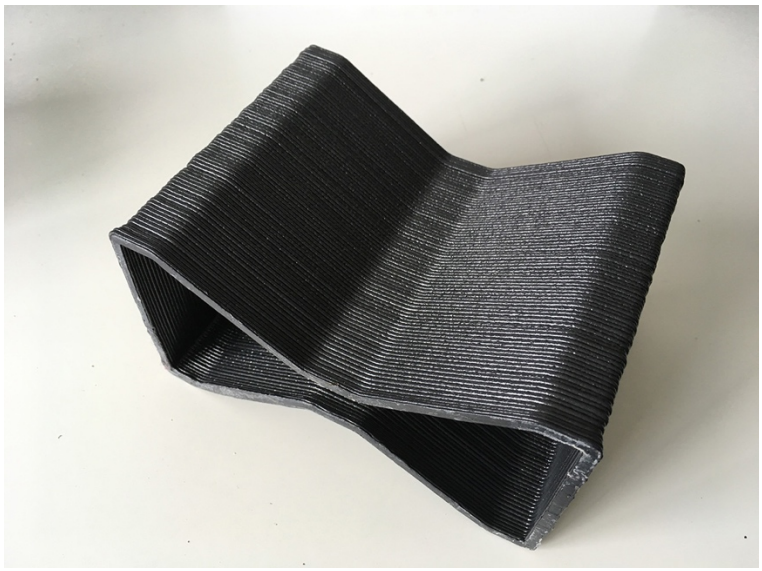

Figure 7. Successful print

CONCLUSION

When lockdown due to Covid-19 was enforced in March 2020 the impact on this study meant the evaluation stage of the project was not able to be completed. This stage had planned to produce a number of bookstands to be placed in the university library. This would have provided the opportunity to evaluate the bookstand in situ and gain feedback from the various stakeholders. Notwithstanding this unanticipated disruption, reflecting on the completed component of the project revealed a number of insights. The closed loop system of object making utilized in this project in itself is not a novel concept, but some of the outcomes observed may contribute to the broader discussion on objects in general and the idea of closed loop making. The key takeaway items relate to object complexity and object meaning.

Object Complexity

The book stand presented in this project is not a complex object in terms of its form or function. Made from a single material, it is not geometrically complex, and its function is rudimentary. This simplicity, however, does not detract from the service it provides. All around us, objects like the bookstand perform rudimentary tasks, and as much we would like to remove them in a bid to reduce the problem of overconsumption, these simple objects are useful. Overconsumption becomes a problem when objects are made from virgin material and in faraway places that require transport over long distances. When there is no connection with the user that encourages attachment and when there is no end of life plan overconsumption leads to unnecessary waste. The bookstand that resulted from this study, is still a simple object, however, how it was realised, the material used and the context of its creation and end use is significantly different to the commercially available varieties. The bookstand is made in a closed loop system in partnership with the university community using material that was consumed, collected and reformatted within the university context. The object is born out of a specific need identified within the community and made in accordance with the communities' capacity to realise an object.

Object meaning

This study highlights the value of the entire process of object making. From material collection to material transformation through to end of life. The humble coffee cup lid in the context of this project can now be viewed as part of a sustainable solution with regards to plastic waste and overconsumption. The coffee cup lid and the bookstand it became, is now linked to the community that found it, re-valued it as a resource and gave it a new life. The bookstand that was previously a non-descript object performing a rudimentary function, is transformed. It is now an object that has a strong connection to its location and the people that use it. A location where the material was farmed, reformatted and put back to service by its very inhabitants. A location that enables that object to be returned back into the closed loop system to become another object at the end of its useful life. Enriching the meaning of simple objects such as the bookstand may be one strategy to ensure against unnecessary energy use in the disposal of objects and encourage the long-term use of objects knowing a system is in place to address the moment when the object, for whatever reason, needs to be replaced.

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THE GENERIC PATTERNS OF URBAN VILLAGE SPACE AND THEIR SOCIAL IMPLICATION

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INTRODUCTION

During the growth of cities, villages are tended to be frequently absorbed into the fabric of such conurbations. However, what is the consequences of this? What is the resultant effect on the village and in the wider city? This paper adopts a spatial approach to answering these questions and asks how the space of the village related to the space of the surrounding context of the cities, and whether this, in turn, have consequences for the nature of village society. These questions are addressed through an in-depth review of the case of two closely related Bahraini cities of Manama and Muharraq. Founded in the late eighteenth century, the regions in which these two cities came into existence originally contained up to eighty villages[1]. The two cities experienced rapid urban expansion early twenty century, which gradually engulfed villages in their vicinity, but the process of absorption does not seem to have been uniform[2]. Correspondingly, at one extreme, the villages seemed to constitute a part of the structure of the city, and at the other extreme, they appeared to stand apart from the city and remain more or less separate entities. These noticeable spatial differences are evidently also reflected in social differences[3].

Since the nineteen-seventies, the human geographic study of the two cities' development has questioned how these remote villages would respond to the new rapid urban expansion process in the future: 'have these small and big villages evolved to become no more than just settlements "implanted" in a context that they have nothing to do with, from the economic or cultural angle? Alternatively, are they evolved to expand and grow further to form a new town centre?' [4]. To date, this question has not been optimally answered. Another study by a Bahraini sociologist Baqer Al-Najjar (1998) states that 'the urban expansion around or in the villages in Bahrain has made changes to the social structure and physical character of the village'[5]. Al-Najjar claims that the main contributing factors of this social integration or segregation between the original inhabitants of the village and newcomers depend on several factors: first, the degree of homogeneity between newcomers' ethnic background and the social class with the villagers, second; the degree of connectivity and typology between the villages' streets and their surrounding areas, third; whether, and the extent to which, the newcomers and the villagers use the same facilities such as school, hospital, shops and so on [Figure 1].

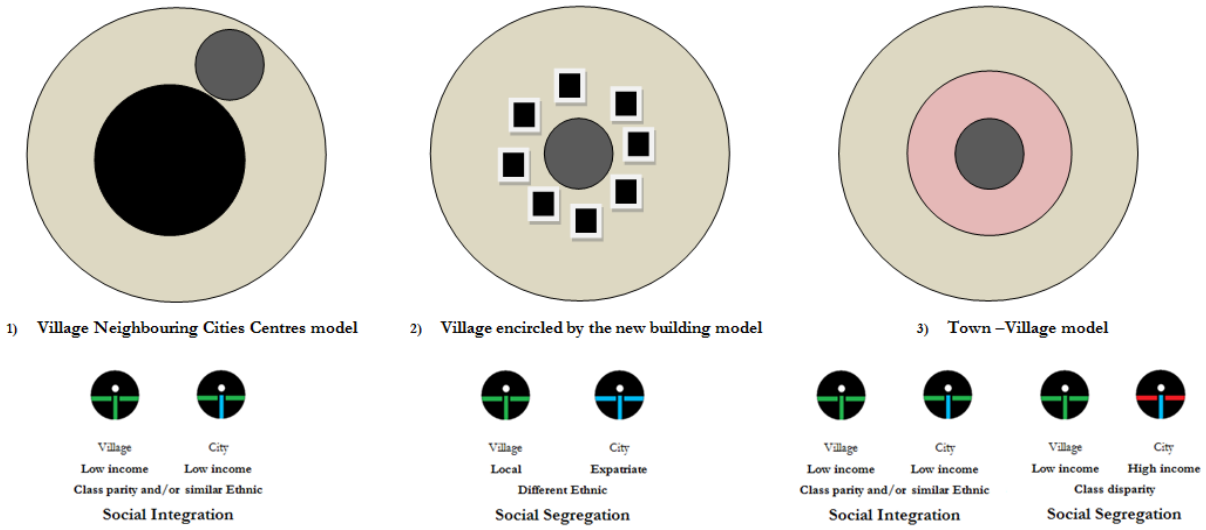


Figure 0 Social –Physical changes theoretical models by Bahraini Sociologist Al-Najjar [Source: Al-Najjar redraw by author]

However, the Al-Najjar theory and his operational methods have resulted in a much more confused physical manifestation of the absorbed villages by Bahrain cities concerning their social segregation. The social study could not explain the reality of the social segregation between villagers and newcomers with ethnic or class disparity. In addition, his models fail to explain the apparent social differences, as the emphasis is placed on the physical appearance of the villages, thereby linking it with the social conditions towards suggesting a range of typological distinctions of villages in conceptual thematic groupings. Correspondingly, even one case is not available in the sociological study of the specific evolutionary sequence of the absorbed villages in Bahrain, with a focus to outline in depth the physical and social changes and the relationship between the two.

These backgrounds show that there is a distinction between villages arrangements in Bahrain by their blocks, and how the village extended concerning new streets networks that depend on whether the main street crossing the village or near it. At the same time, cities seem to have a different distribution between their main centres and sub-centres[6]. Besides, the city's location, concerning the global market in the region, shapes the functions of such centre and impacts the surrounding sub-centres and areas, including the villages[7]. Also, the land uses, and function of the surrounding context of the villages differ significantly between commercial use, residential use and mixed-use. Moreover, the connectivity of the village with new street networks is not always the same. Some villages are surrounded by main roads with links, while others have no such connection[8].

Several scholars arguing that urban villages help integrated the migrants into urban society by providing affordable housing within approximate distance to the main urban centre in the city. This complex nature in urban villages enables villagers to construct their land and houses with affordable rent[9]. Besides, other studies argued that the phenomena of urban villages play a role in imbalance of social structure, that the urban villages help to fill the gap of the diversified the social, economic, and spatial composition in cities, through the way village urbanised within their urban context[10]. Other scholars and urban developer considered it as the dark side of urban development. They were perceived as fertile ground for crime and considering their layout as a chaotic[11] and deteriorated environment which needs to demolish[12]. A human geographer Pu Hao argues (2012) that there are two main limitations of urban village policies in China' First, there is a tendency to adopt the stereotypical

view of the urban village as simple, static and homogeneous migrant enclaves […] Where the development of an urban village reflects the multiple needs and demands of the people that live and work there and these are related to their formal urban context… urban villages evolve differently, mainly due to their diverse urban contexts, and this shapes a heterogeneous urban village housing market. The ignorance surrounding of the spatial evolution of urban villages and their resulting diversity hinders our understanding of their dynamic and diverse nature, which is likely to mislead our pursuit of sustainable urban village policies. Second, urban villages are usually studied in isolation from their formal urban surroundings'[13].

Village absorbed by the city is equally a social and a spatial phenomenon, therefore, a conception of how these different absorbed villages, as a part of the urban fabric, present a distinctive character is essential. This begs the questions: Are there any differences or changes in the absorbed villages' society following the embedding in the urban context? Is there an account of the social nature in relation to their configuration within the surrounding context?

There is little understanding of how villages evolve spatially, or how village space organisation is influenced by such an urban expansion, and what the social and spatial implication of such development[14]. This also related to the broader background of the 'space-society' problem in cities, that even though cities have absorbed villages on the large-scale through the growth process and urban development, it is often challenging to identify how this impact on the social development for these absorbed villages by city. This posed two fundamental questions for the theory and practice: what in term of village space, is an urban element? And how do these urban elements in the village's layout express social relationship and function?

From the works of literature of the urban villages' phenomenon, no studies have addressed the spatial dimension of the urban village in any depth. Two urgent spatial questions are raised for such urban phenomena. First, what is the impact of city development on the village contextual urban structures, and does this in any sense depend on how they are structured and related spatially? Second, are these urban villages develop into a consolidated network through the usual urban process of growth and adaptation, or are they based on separate entities? Is there any way in which we can give a more explicit description of these villages (internally and externally) structure on how they related to the city at the multi-scale? What structure remains to be discovered, on the way of villages knit into the city at the same time have a role in their social development?

Theoretical concept

Cities have expanded rapidly throughout the significant urban transition that started in 1950, and that has accelerated steeply over the past 20 years[15]. Mostly, cities are increasingly vast and dispersed settings[16], which grow and age in a complex, non-linear manner[17]. Accordingly, urban layout displays multidimensional patterns of variable density across space and time, in which high-density built-up areas can be finely combined with lower frequency, such the case of the urban-villages[18]. However, this form of expansion is rarely taken into account of urban studies in the way that villages are urbanising[19]. The on-going urbanisation has significant consequences for the urban village phenomenon, requiring a deep spatial understanding to acknowledge the aspect actively in terms of the ways that they impact on villages social development within the different urban settings. Accordingly, any analysis of recent urban form or an urban phenomenon without its historical guides will fail to understand how urban settings grow and develop[20].

A recent study by Strano and his colleagues (2012, & 2016) focuses on the evolution, over almost two centuries, of the streets network in a large area close to Milan, called Groane in Italy. The studies reveal a quantitively signature of urbanisation on the evolution of the space and block size, which

become more homogeneously distributed and square-shaped through the time. Concurrently, the study observed a general trend toward a large number of 4-way junctions, as opposed to an earlier structure of dead ends and 3-way junctions. Strano explained that these structural transformations appear to be the result of the interplay between two current dynamics of urban growth, namely densification and exploration networks by betweenness centrality measure. While exploration is typical of the earliest historical periods of urbanisation, densification in the latest in Groane, Italy[21]. He continues explaining that there is a clear relationship between the age of a street and the betweenness centrality networks. The study found that the highly central links in recent year are also the oldest ones in 19 century. For instance, 90% of the 100 most central links in 2007 of Groane was already present in 1833, which reveals as a 'backbone' of highly central routes that have framed the area in the preindustrial period and has been driving its development across two centuries[22]. In addition, the road networks at different times show how the initial small separate villages have grown by the addition of new nodes and links, eventually merging in a similar pattern of streets[23]. These networks are characterised by two distinct, concurrent processes: one of densification, which is responsible for the local density increase of the urban texture (or say local blocks), and one of exploration, which corresponds to the expansion of the network toward previously non urbanised areas. These findings support the suggestion that urban systems undertaking fine-grained forms of evolution tend to exhibit simple local dynamics of change, continuously expanding upon pre-existing structures, a morphogenetic behaviour that they appear to share with many living organisms[24].

Moreover, the urban growth process comes with different interventions through the time by creating, alteration, demolishing and/or built-up infill area and sometimes superimpose the cities by new structures such as highway and bridges[25]. The problem of the urban villages and how they figure into urban spaces, as well as the effects on their functions, has been given increasingly special attention in the recent literature on built environment research. Davis and Brown (2011) have argued that the mixed-use buildings and fine-grained street networks in the urban village morphology have a significant impact on the ability of the inhabitant to integrate themselves in the economy and social life of the city. Most urban villages contain a morphological mix of the old core, new expansions and incremental change within those two types of the urban fabric. Usually, such villages have a compact grid structure with the surrounding context. According to Oostrum[26], who analysed the morphology of villages expansion, four elements distinguish villages from one another: the orientation of the grid, the dimension of the grid, the hierarchy of the street network and the commercial activity, all of which play a role in producing different types of adaptation of the space of the village to their surrounding context. For instance, if the village's edge of each expansion is aligned with surrounding built infrastructure or is it oriented independently from the surrounding context. In addition, the village grids have small dimensions and narrow alleys, in relation to its surrounding context. This study shows the range of urban villages morphologies, which are required to understand their impact on the socio-economic functioning of the village. The phenomenon of urban villages has received much attention in recent years, mostly about their socio-economic aspects and their role in accommodating migrants – despite the fact that the link between the socio-economic functioning and the urban villages layout studies is very limited[27]. One of the most striking morphological processes observed in the sample of urban villages was the reproduction and adaptation of established types, as found in Caniggia and Maffei (2001). This type of typological thinking has not yet been applied to urban villages, where it could help to understand all morphological elements, including typologies of streets, buildings and plots. Studying such transformation processes would ideally require diachronic morphological data, which at present is not available in sufficient detail.

The theoretical background in the existing literature does not provide a rigorous account of village configuration and, more importantly, does not look with consistency at their space layout and its relation to the spatial structure of their urban context, but makes only the most general references to space. This fact accounts for the intention of this thesis, which is to reveal the main dimension of variability in how the urban village is embedded within the surrounding context and their relationship to the development of the villages. This objective of this thesis differs from the approach of most of the urban morphology and human geography studies in the following ways: first, it is directed towards the analysis of the urban village social nature through the village configuration and space layout within the surrounding areas, as it seeks to identify those spatial elements and properties that have a critical role in respect to how the village's space is embedded in the urban fabric, and how it can be used to support their impact on the people encounter and co-presence between visitor and inhabitants.
To address one of these limitations, this paper examines the absorbed village by Manama and Muharraq cites to enables a deeper understanding of the urban villages, through exploring the dynamic of urban villages space layout, not only in their process of urban development and its resulting spatial and social nature revealed but also the relationships between the villages and the overall growth of the city are understood. Additionally, all the different individual urban villages across space and time affect the overall functioning of the city. Their aggregate outcome, for example, the pattern of the social and spatial changes at the city scale, perhaps represents a large share of the urban growth that significantly shapes the city's overall. Knowledge of the urban villages' phenomena may, therefore, contribute to a broad range of studies related to recent urbanisation in different cities. Therefore, how should we seek to understand the absorbed villages morphologically, functionally as well as social processes? How should we describe absorbed villages by the city? How are they different, and why are they different?

Theoretical framework

This study in search for a theory of the city about the interaction between societies that create and occupy cities and the city as a physical and spatial thing, as an architectural object[28]. Historically, from the Chicago School onwards, theories of the way in which social and economic processes shape cities have been at the planning level of the area structure, with some references perhaps to the principle methods. Nevertheless, the cities that we experience, and which seem to work for us are at a much finer scale that they are made up of complex patterns of spaces and buildings, and equally complex patterns of social and economic activity. We need a theory able to describe these complexities. Here the study seeking to search for a theory to understand the architecture of the whole city and not be confined to the local such as space syntax theory[29]. There are, in our time, a number of approaches to understand city[30]. However, Hillier argues that all share a paradigmatic agreement on three things: first, that space is not of interest in itself, but only insofar as it is shaped by human agency; second, that space does nothing to us; it has no agency in itself, and can only receive the imprint of society, not put its own imprint on society; and third, space certainly can't have its own laws – that would mean going back to the too awful sixties and the – long since abandoned – 'quantitative revolution'[31].
While space syntax researches by Hillier and his colleague shown the contrary: firstly that, the city is seen as configuration, space is of independent interest and responds to human agency in systematic and analysable ways – despite the apparent paradox that space seems to be dependent on its creation and the deployment of objects – partitions, buildings. Secondly, that space does have agency: as configuration, it shapes emergent collective movement flows and therefore human co-presence. In Hillier views, this is what space does, and all it does, and everything else it seems to do passes through

this essential relation – which is intuitively apparent, mathematically necessary and empirically the case. Moreover, thirdly that space is after all subject to laws which apply to it quite specifically and to nothing else [32].

THE GENERIC URBAN VILLAGE SPACE

The idea that the urban grid is made up of two interlocking grids, each with its metric and geometric properties: a foreground grid structured by and serving microeconomics, and a background grid structured by sociocultural factors and serving mainly residence, the two being linked by a pattern of pervasive centres. These different spatial structures generate fundamental differences in social networks which in the foreground grid serve the need for morphogenesis, and in the background grid, the need for stability. The coexistence of microeconomic morphogenesis and sociocultural stability is what the city is for, and it is both reflected in and created by the dual form of the generic city. Cities are not designed things, but emergent processes. To understand cities, then, we must understand the process of emergence and even more, the structure of emergence, and ask how and why the city, defined this way, reflects or shapes human experience and activity, and with what outcomes. What it means is that underlying all these differences there is at a deep enough level a generic city, that is, a structure that makes a city a city in the first place[33].

A three keys outcome permit us to see the villages as social process are the generic structure of the village, the intelligibility of the village space within the surrounding context and the village space function[34] [Figure 2]. The notion of intelligibility defines as the degree to which what can be grasped and experienced locally in the system allows the whole system to be learnt without conscious effort. What is more, the essential elements in all the three is the linear spatial elements. This linear structure of space is a distribution of local and global integration, which becomes the functional mechanism driving the first pattern of movement, and through this, the distribution of land uses, building densities and landmarks[35]. However, cities and villages were organised in a series of intersecting rings which are normalised by a enhance or reduced the degree of linearisation of space to form the relatively deformed grid[36].

A key point that derived from the theocratical background of space syntax which is of critical value for the particular aims of this study is that the differenced in spatial structures between the village and another were formed in a different urban context. Precisely it was found that the spatial structure and geometrical shape of the foreground and background network for normalised integration and normalised choice movement at multiple radii, of the absorbed village by Manama and Muharraq, might reveal the differentiation of embedded patterns of the village within the urban context from one to another. At the same time, this "dual foreground-background structure of the network of space in cities reflects the differences micro-economic and sociocultural forces with each using the same underlying spatial and spatio-functional laws to achieve different effects. One of the difficulties of studying cities is that they seem to involve the interaction of physical, spatial, economic, social, cultural and cognitive processes, and in the past, no models have existed for integrating such complex interactions."[37]. For instance, the foreground networks space is anticipated to be with long lines, linear continuity, generative use of space usually for micro-economic use. In contrast, the background networks space is with short lines, less linear continuity and conservative use of space-related to social-culture use. In this respect, space might play a radically restrictive or generative role for co-presence and encounters between local and non-local, which might lead us to an implication of the social nature of the absorbed village. More precisely, space can be both; in a conservative mode, aiming to conserve existing relations, and in a generative model, intended to generate something new by using space to create co-presence through integration. Conservative space model leaves things

much as they are, while the generative space model, by creating a richer field of potential encounters, can lead to the appearance of new social connections[38]. Therefore, the fundamental idea behind the conservative–generative space mode distinction is the generic structures of the village spaces or say the foreground and background networks and the way it relates to the surrounding context and the city.

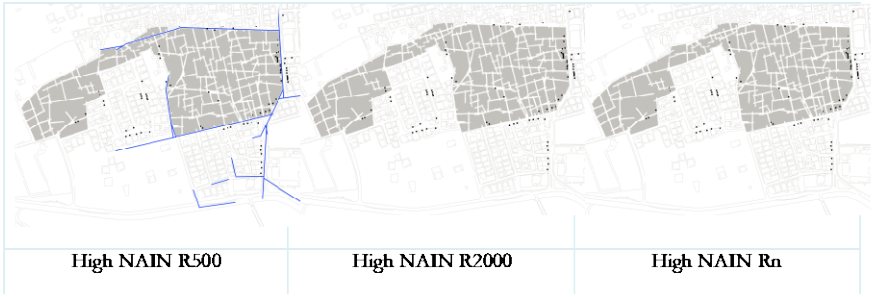
Result

The analysis suggests that the villages are embedded to different degrees within the urban context. In the case of well-embedded villages, the structure of the village system shows the high potential of movement at different scale and for non-residential use. The location of high movement that remains in the same space and is an essential element when it accommodates not just the edges of the village but also the inner space. The most significant patterns found in the villages' structure is the deformed urban wheels. The map shows that the high dynamic pattern of flows of people who use space is picked out by the high movement of integration and choice in the village at local radius R500 or intermediate radius R2000. The study suggests that these villages are tied in different ways to the surrounded urban context. Some of the layouts of these villages expands the graph of movement to generate relations with the surrounding context. In contrast, that of others have limited graph movement to spread only in the local structure.

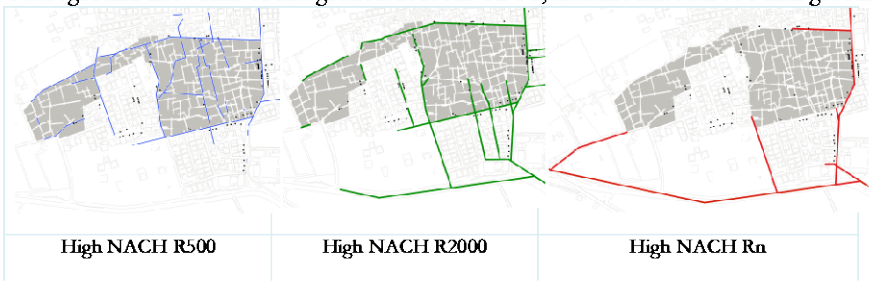
The absorbed villages appear to have been morphologically differentiated, and as parts within the urban context at the local radius, which implies there is an identity of local elements. However, the combination of the variant pattern of local village space with a high degree of invariant pattern overlaps with the global space networks, which thus define the nature of the village and the way it is embedded in the whole system. The key is that the long linear space pattern and a deformed wheel pattern at the local scale are essential urban elements to enhance the ability of local systems, such as the villages, to bind with the surrounding context. The more accessible a village is at different scales, the more one may expect a high density of movement of different groups and commercial generation. The studies found that villages' structure is revealed through spaces that accommodate the high potential of movement at a local distance. These spaces come in different patterns with altered function. The strongest is one that remains with high movement at multi-scale for commercial use. Also, the location of these structures is an essential element, whether they are found in the periphery, in the inner space, or both [Figures 2 & 3].

Furthermore, choice movement can be interpreted in several ways based on studies of space syntax. For example, Chiaradia found the choice to be a measure not just of through movement but of also the geometric continuity and connectivity of space in the segment lines model[39]. Also, a recent study by Hillier found that normalised choice correlates significantly with segment connectivity and demonstrates that the normalised choice of the size of the system is independent[40]. The choice movement also affected by the geometrical shape and form of the urban block; therefore, one can note the possibility of forming one's sight within the space. Additionally, choice movement graphs can hypothetically reveal the natural boundaries of sub-areas, as suggested in the earliest syntactic studies by Peponis using the axial model[41]. In this study, it was found that the foreground networks local choice R500 reveal a clear boundary, which might relate to the natural boundary of village neighbourhoods and needs further investigation in future research. Another finding is that the foreground networks of choice at R2000 pick out all the commercial activity in the villages [Figures 2 & 4]. Finally, the villages with strong intelligibility at R2000 are villages with highly commercial activity oriented toward the peripheries of the village space rather than the inner space, besides there is a strong co-presence with a diversity of people with different ethnicity and gender. Most of these

villages of strong intelligibility are also hold a strong foreground network of choice from R500, 2000 and sometime part of the global radius.

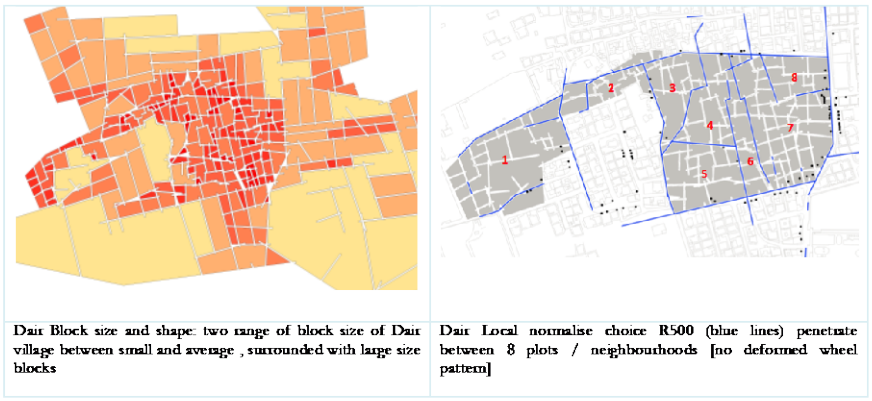


Dair's foreground networks of integration at local R500, intermediate R2000 and global Rn



Dair's foreground networks of choice at local R500, intermediate R2000 and global Rn

Dair's Intelligibility between foreground choice at local radius R500 and intermediate radius R2000



Dair's block size (left) and local high-normalised choice (right)

Figure 2. Dair urban village in Muharraq (Bahrain) foreground networks of integration and choice at a different scale from local to intermediate to the global radius

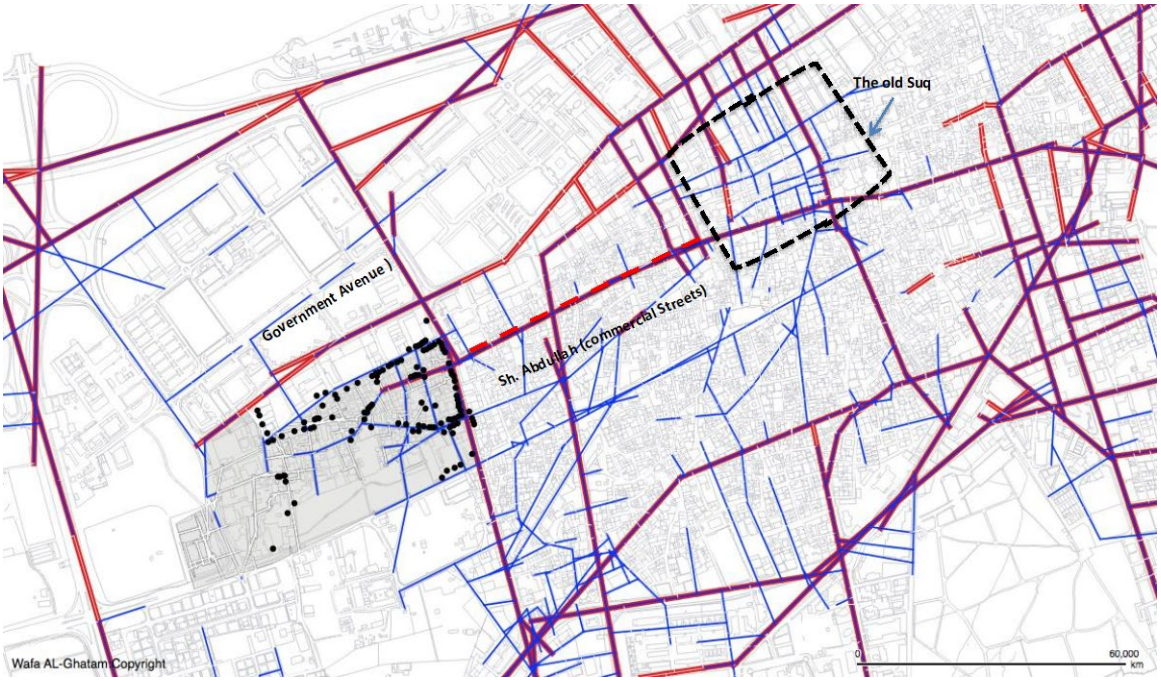


Figure 3. Naim's synergy pattern between the foreground network of normalised integration at local radius R500 (blue) and global radius Rn (red) NAIN Rn and NAIN R500. The microeconomic activities (shops) of the village indicated by black dots in this map.

Figure 4. NACH R2000 pattern look stronger and spread all the space than NACH R500. The village RasRuman have a strong integration core (same location) at multi-distance from local, 2000 and to globe. It is connected with one critical commercial streets of Old centre of Manama connected strongly with a Suq. Besides, the global integration pattern of the space looks stronger than the global choice—the microeconomic activities of the village indicated by black dots in this map.

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INCITING ENGAGEMENT AND COLLABORATION THROUGH INTERACTION DESIGN: AN URBAN TRANSPORT SYSTEMS DIGITISATION CASE STUDY

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INTRODUCTION

Cities are becoming increasingly complex in theory and practice. Digitization of public and private space, governance and across industries, underpinned by dynamic local to global networks and actors, are deepening the complexity of cities as objects of inquiry and contexts for action. The science of cities (Batty 2012, 2018) presents evolving dynamics, actors, relations, flows and multi-dimensional scales whose scenarios are difficult to model and coupled with uncertainty. Conceptualizing cities requires consideration of changes underway in their various interdependent systems within systems, including transport, energy, food, land use and population, which are each in turn constantly in flux (Baynes 2009).

Indeed, the complexity of cities appears to be overtaking our ability to comprehend (Batty 2018). The long-established problem of not being able to precisely define what a city comprises has conflated with new technology infused dimensions. This heightens the importance of finding new ways of thinking and learning about cities to further develop our 'spatial imaginations' (Healy 2006, 2007). Novel tools and perspectives for city makers and inhabitants are needed for communication, learning and collaboration so that multi-stakeholder strategies and solutions can be formulated and implemented that align transformations underway with sustainability.

One approach to address the communicative and collaborative barriers provided by complexity is the employment of design. Specifically, interaction design principles applied in human computer interaction (HCI) praxis can be utilised to mediate urban systems complexity to enable stakeholder comprehension. This paper provides evidence that interaction design led communication and collaboration is a useful means for enabling understanding, interest and engagement. The case study activities concerned urban transport systems, however the overarching design principles applied could assist in inciting engagement in any topic riddled with complexity whereby broad public engagement, facilitation of learning, interdisciplinary dialogue, problem solving, or ideation are sought.

COLLABORATION IN CITY MAKING

Communicative and collaborative practice has a longstanding history in urban planning, public policy and architecture (Presscott 2000). With governance transitions, devolving government and diversifying service providers (Kearns and Paddison 2000), collaboration has become a staple of political rhetoric with a fluid meaning (O'Flynn 2008). The term is used to represent many different types of working together, including networking, coordination, cooperation and collective decision making (Himmelman 2002, Esteban 2020). Looking past semantics, ideally collaboration is voluntary, involves mutual engagement and goal setting, autonomy and trust (Sullivan & Skelcher 2002).

Considerable research attention has been paid to issues of collaboration. Healy (i.e. 1999, 2003) has extensively examined the implications of communicative acts and power structures in urban planning process. Mantho (2018) examines the issue of trust and the negation of self in collaboration in architecture. Margerum (2011) provides methods for public management that might bridge the gap between consensus building and implementation, whilst Huxham (2003) outlines problems and unrealized opportunities of collaboration within the themes of common aims, power, membership structures and leadership. Others highlight the difficulties in interdisciplinary and public collaboration due to heterogenous backgrounds of participants, and the multitude of perspectives involved making consensus difficult (Moirano et al 2020, Malhotra et al 2017).

Nevertheless, the interdisciplinary and complex nature of contemporary societal challenges requires yet greater collaboration and joint working. The wicked problems of cities such as housing affordability and uneven economic development, as well as climate change and the sustainability of urban systems require new linkages between previously siloed actors, institutions and enterprises (Crowley & Head 2017, Davidson & Gleeson 2017, Fab City 2019). Vertical collaboration for multi-level governance as well as horizontal collaboration across industries and sectors are integral for the accomplishment of global sustainable development goals (Vazquez-Brust et al 2020), particularly in terms of enabling innovation.

INTERACTION DESIGN FOR COMMUNICATION AND ENGAGEMENT

Whilst city making and governance have increasingly pursued stakeholder engagement and collaboration, ubiquitous computing has transformed dominant means of information dissemination and communication norms. With declining faith in institutional authorities, the world wide web has provided an almost paralysing number of sources and formats, making information overload a modern-day problem (Dhavan et al 2017). This abundance has created a struggle to attract and retain attention (Franck 2018).

The speed and volume of digitally mediated content and interactions have added new dimensions to notions of participation and collaboration. Whereas referring to in-person engagement would assume a two-way conversation or marked exchange between parties, engagement in digital terms refers to milliseconds of a person's attention, a fleeting moment of recognition. Decades of 'digitality' are creating a new type of cognitive space (Negroponte 1995) and this environment calls for new types of thinking and learning (McKenzie 2019). Juxtaposed with the complexity of cities, these are challenging trends for urban practitioners and others seeking wide communication, engagement and collaboration in city making activities.

In light of these transformations, the utilisation of interaction design within human-computer interaction (HCI) best practice is one-way communication and collaboration could be oriented in the pursuit of optimal engagement. The goal of interaction design is to create a positive user experience, commonly with interfaces for software and websites, but principles of interaction design are also applied with non-digital products. Interaction design is increasingly used to incite emotion with

physical products (and the will to purchase) or to actively engage audiences in gaming, social media or online shopping (Chong 2018, Salmond & Ambrose 2015).

To apply interaction design principles to collaborative or communicative practice, participants are considered the users, and the collaboration action or communication output replaces the digital media or physical artefact for interaction design intervention. Best practice principles of interaction design set out by Heim (2008) are identified hereafter. The principles are explained in terms of how they relate or could be applied to collaboration and communication activities in urban practice to unravel complexity and enhance engagement of participants.

Usefulness

- Utility

Utility refers to what can be achieved and how easily in context. With communicative and collaborative practice, the utility of the activity could be to inform, to educate, to ascertain feedback, to conceptualize ideas or questions, or to design solutions.

- Safety

Psychological safety is pivotal for optimising engagement. When individuals feel they will not be embarrassed or reprimanded for their participation they will be more open to new ideas, willing to contribute and take risks. Psychological safety has been found to be the most important aspect of well-functioning and innovative teams (Rozovsky 2015, Edmondson 2018).

- Flexibility

Flexibility refers to the range of situations the activity or output can be used and the range of needs that can be met with it. Flexibility includes customisation according to the participant's or user's needs or preferences.

- Stability

Stability refers to the reliability of the activity or offer, that it will consistently be functional or available and that it will provide a reliable basis that utility can be achieved.

Usability

- Simplicity

Simplicity is paramount to usability not only in terms of design aesthetics but also regarding content to enable comprehension and sensemaking. The multidisciplinary nature of urban challenges requires accessibility for non-experts to be included in the overall concept through consideration of cognitive load.

- Memorability

Memorability makes things easier to use and learn. It includes location of design elements and information grouping. It enables communication or collaboration activities to be easily comprehensible and allows the application of previous knowledge.

- Predictability

Predictability, such as through consistency in colours, headings and text location or as practiced through certain actions or gestures in-person, creates a sense of security for participants. Conventions and familiar design elements prompt comprehension and intuition.

- Visibility

As much information as possible should be provided, but no more than necessary. Visibility can be driven by the principle of simplicity to determine what should be visible and when. Feedback mechanisms when an interaction should occur as part of this process e.g. with a click more

information appears, in-person dialogue and information sharing according to participant questions or interests.
The following case study demonstrates the utilization of these principles in communication and collaboration artefacts.

EXPLORING URBAN TRANSPORT SYSTEMS FUTURES: A COMMUNICATION AND COLLABORATION INTERACTION DESIGN CASE STUDY

How might engagement be achieved with a broad range of stakeholder groups utilising design research methods to explore topics at the intersection of open source and sustainable urban mobility? This was the underlying question that prompted the research which led to the design and development of a web-based taxonomy, a card deck and an accompanying workshop format presented in this case study. They were the culmination of exploratory research which identified that the lack of clarity and comprehension of what a sustainable and open mobility ecosystem comprises is a key barrier to the creation of, or even initial dialogue about, sustainable transport systems that included attention to foundations needed for sustainable digitisation. The complexity of transport as an urban system was overwhelming and its elements unclear, particularly when coupling transport with concepts of openness, innovation and emergent technologies.
The research question was conceptualised within the context of an experimental transdisciplinary think tank, tasked with generating knowledge, debate and collaboration about urban transport futures. The target audience of the research was the general public as well as those working in transport, policy, startups and product design. The exploratory research phase (April – June 2019) included desktop research as well as informal semi-structured interviews with experts and individuals representing the aspired audience. The taxonomy, cards and associated materials were thereafter created and implemented between July 2019 and March 2020. The materials developed are now in the public sphere as creative commons resources.[1]

Envisioning complexity

The Sustainable Open Mobility Taxonomy is an interactive online system visualization to help people navigate potentials and explore best practice of urban transport transformations aligned with digitization and multi-stakeholder innovation (Figure 1)[2]. The taxonomy includes 18 components at the third level with additional 200-300 words of explanatory text including references for best practice examples that can be accessed through user interaction (clicking the text or + sign). The taxonomy headings represent topics that are core elements of urban transport systems, others are simply desirable, depending on the political, social and economic conditions, progress of the subject context and perspective of the user.

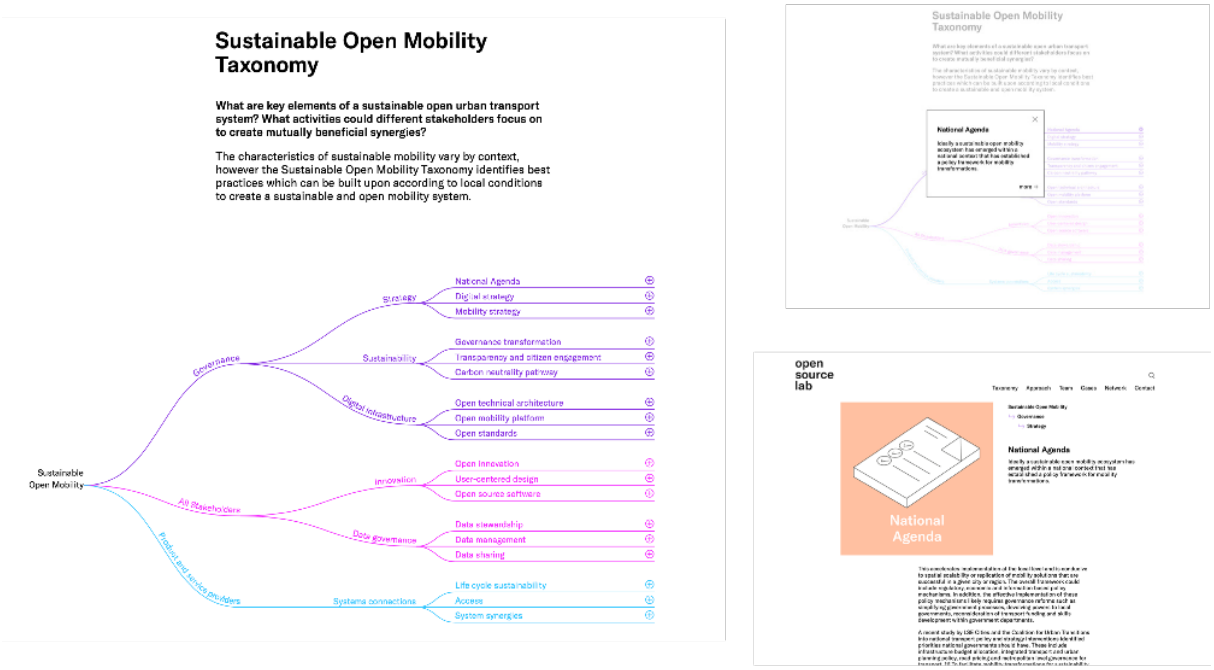

Figure 1. Three levels of interaction with the online taxonomy.

Satisficing, that is balancing between satisfying and sufficing, was a key component to striving for an engaging format. The taxonomy branches do not encompass all of the possible elements of an urban transport system, but a strategic basis to engage with the concept of transport systems within cities and array of themes that can affect them. In light of communication trends and Pareto's 80/20 principle (80% of effects come from 20% of causes), the taxonomy was designed in a way that the user doesn't need to read every element or the underlying research to get an understanding of the complexity, challenges and opportunities involved in the topics at hand for learning, critiquing or building upon. It sought to connect visual literacy and a low-threshold entry point for a highly complex and oftentimes technical subject matter, which is normally limited by silos, for instance in scientific or academic publications. As articulated by Hebing et al (2017), the taxonomy format aspired to counter the linear narrative of scientific papers.

Progressive disclosure is also utilised i.e. the user is only shown what is necessary at any given moment during their interaction (Heim 2007) to counter overwhelm that might arise if all the explanatory text for system components were provided on one page. As demonstrated by the 'more info' button, pop up boxes with summary text and links to additional resources on the explanation pages (Figure 1). The taxonomy can be navigated in a non-linear manner, allowing a personalised journey through the research outputs according to interest or curiosity. For predictability and memorability distinct colours are applied according to meta topic groupings and universal icons designed into the graphics for each topic.

The taxonomy was published online in January 2020 and in the following 6 months it had 604 visits. According to the page views undertaken on each level three topic explanation page, a score was calculated based on the highest possible views to a page as the baseline. The percentage for each page according to the baseline was calculated then multiplied to create a basic whole number, rounded to one decimal place. Thus, 'National Agenda' was the baseline and the highest 'Inquiry score' (10) as it had the most interactive engagement (Figure 2).

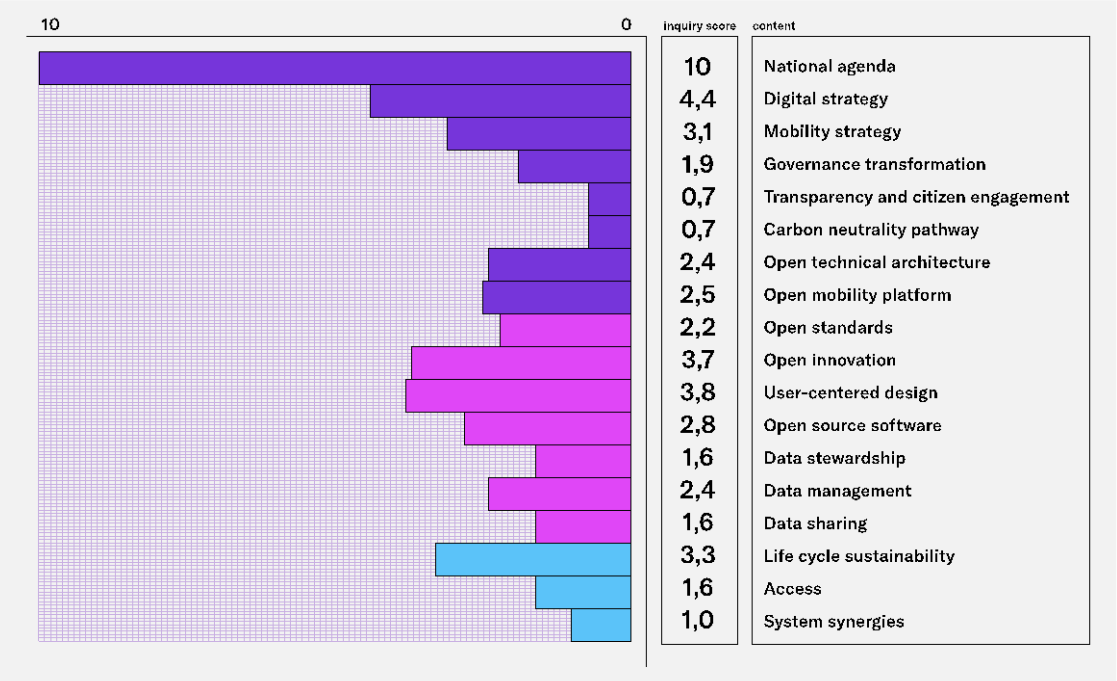

Figure 2. Frequency of interactive engagement by individual users for the online taxonomy topics that provided explanatory text (third level headings) (Graphic design by Olya Bazilevich)

The taxonomy engagement results highlight the importance of the lead content and the non-linear engagement patterns with the research. Whilst most people visiting the site visited the National Agenda entry, this is likely due to its position as the first topic listed that can be chosen for further information. However, it can't be discounted that the high score was also attributed to the level of interest in national policies also being higher across all visitors. Ideally this would be tested by placing the topic groupings in a different order and comparing the results with the alternative (A/B testing), which was outside the scope of this research.

The topics 'transparency and citizen engagement' and 'carbon neutrality pathway' received the lowest engagement scores from all the topics. The Open Source Lab network is mainly comprised of professionals already working in transport or related spheres, as well as Masters students studying urban mobility from the Berlin Technical University campus neighbouring the Lab's working location. The low engagement level is thus assumed to reflect the nature of existing knowledge within this network. These being longstanding mainstream topics in urban planning and transport discourses, failing to incite interest compared to novel and emergent topics also included in the taxonomy such as 'open innovation' and 'digital strategy'.

Re-shaping complexity

The Sustainable Mobility Kit is a set of 21 printed cards at the scale of an oversized traditional playing cards deck.[3] They were developed to enable further engagement in the research results that developed the Sustainable Open Mobility Taxonomy and to provide a tool for others to utilise for purposes including transport planning collaboration, policy making, education, training, design workshops and innovation sprints. The cards replicate the online taxonomy headings with condensed explanatory text set out in point form. Each of the 18 topic cards contain question prompts that interrogate key

challenges or opportunities for further consideration of the topic. In addition, 3 stakeholder cards represent different actor spheres.

Figure 3. The Sustainable Mobility Kit printed card deck (Photo by Olya Bazilevich)

Whilst the nature of engagement for the online taxonomy is digitally mediated between individuals and electronic devices, the Sustainable Mobility Kit creates a tool for in-person group interactions to discuss, debate and ideate solutions to mobility and urban digitisation challenges. It was developed in line with rationale that underscores the importance of social interaction and collaboration for learning (Auer et al 2018), reflective reasoning (O'Madagain et al 2019), innovation and problem solving (Ystrom 2018). The cards were tested in two workshops with programmes including brainstorming (culminating with an idea lottery), card sorting rounds, 'how might we' ideating and systems mapping. The workshops hosted 20-25 people and activities therein were undertaken in small groups of 3-5 people.

The workshops highlighted the usefulness of the cards as a training and sensemaking tool. Particularly for individuals and teams in larger organisations that work as part of the transport sector but in siloes, the cards provided a balance of introductory knowledge, systems thinking insights including feedback loops and identification of potential relationships between different elements and actors. In this way they can be used to support a 'middle out' approach (Frederiks et al 2016) for built environment practitioners such as engineers, planners, architects, service delivery specialists etc to effectively mediate between top-down and bottom-up stakeholders despite the complexity involved. Sensemaking is a pivotal basis for innovation and problem solving, and on its own can create new knowledge and value within an organisation (Gioia & Thomas 1996). More broadly, the cards are could be a means of sensemaking for activities with the general public, supporting concepts for participatory citizenship (Shah 2017).

The card's tactility and visual design made a significant positive impact on the nature and extent of workshop engagement. When distributing the cards for the first time, participants received the cards with awe and delight, and were eager to explore each card as one does with scrolling through photos or browsing a magazine. When given more time, workshop participants did not tire of reviewing the cards repeatedly, taking in more information or noticing different cards, navigating with the graphic designs. Upon being shown the Sustainable Open Mobility Taxonomy interactive webpage in addition to the cards, workshop participants preferred the cards, but found the taxonomy to be very helpful to review independently during workshop breaks for a strategic systemic overview of the issues being discussed.

Figure 4. (Top left) Reflecting on the complexity of urban systems with the Sustainable Mobility Kit card deck. (Top right) Card sorting results during a workshop. This group chose the perspective of Berlin's public transport agency and identified topics it should prioritise. (Bottom right) DIY cards created as a result of user feedback. (Bottom left) The cards also formed the basis for generating alternate scenarios for urban transport challenges. (Photos by Olya Bazilevich)

Feedback from workshop participants also highlighted that some scope to appropriate the cards according to the user's perspective would be ideal. During the workshops many participants improvised their own cards from materials at hand. Inventing ways to make the cards applicable to differing contexts and actors, deepening possibilities for their own engagement in the collaborative activities through a DIY ethos (Rheingold 2008). To encourage this kind of spontaneous and individualised adaptation of the card deck in future use cases, additional cards were designed and are now included in every deck so that topics or stakeholders can be created by participants intuitively.

CONCLUSION

Complexity, diversity and uncertainty are innate to contemporary urbanity. Those tasked with the design and governance of cities and their system components would be well served to have an increasing array of methods and tools for effective communication, engagement and collaboration with each other, as well as those affected by city making and shaping endeavours. In particular, tools for learning in multi-stakeholder and interdisciplinary settings as well as ways to learn from the progress and experiences of other cities.

In this sense, the Sustainable Open Mobility Taxonomy and the Sustainable Mobility Kit offer two approaches that can be utilized as part of broader programmes seeking to not only understand and address challenges, but also to create opportunities in digitization underway for cities and societies. As open source resources, they can be used, appropriated and further developed by anyone for any purpose. Their current design caters to uses including education, policy making, consultation, design and innovation. They can support capacity building, solution finding processes, sensemaking and consensus building on topics dealing with the intersection of urban transport, digitization, open source concepts, sustainability and human-centered design. Most notably, the Sustainable Mobility Kit cards with their do-it-yourself element, offer a promising tool for fostering collective intelligence and supporting active citizenship.

Interaction design principles provided an effectual framework in striving for engagement in the case study formats. Consideration of utility, safety, flexibility and stability, adopting simplicity, memorability, predictability and discreet visibility framed the information and graphic design. Application of the Sustainable Open Mobility interactive taxonomy and the Sustainable Mobility Kit card deck demonstrated that interaction design can be a valuable approach for understanding and enhancing the quality and depth of engagement and collaboration in complex topics of urbanism.

The formats presented are intended as a starting point for engagement and collaborative working with urban transport systems themes. They are a conceptual entry point for forming an understanding of the diverse scope of stakeholders and factors involved or that should be taken into consideration. Naturally, they do not represent the scope of expertise and technical insights that are needed for detailed and localized comprehension of the subject topics. They do not seek to reduce or avoid the complexity of urban systems, but rather to initiate engagement with a broader audience and on wider programmes to embrace complexity.

NOTES

[1] Code for the taxonomy Wordpress plug-in can be found at https://github.com/open-source-lab-DFKI
[2] View the taxonomy at: https://opensourcelab.dfki.de/taxonomy/
[3] The cards are downloadable at https://opensourcelab.dfki.de/new-resource-sustainable-mobility-kit/

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NEW ARCHITECTURAL PARADIGMS FOR FASHION, BETWEEN PERMANENCY AND EPHEMERAL, BETWEEN REAL AND VIRTUAL

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INTRODUCTION:
FASHION AS A VECTOR OF CULTURAL AND TERRITORIAL REGENERATION

In the contemporary territories, fashion plays the role of interpreting the flow of changes and transformations by "combining and sewing what seemed to us irreconcilable: tradition and modernity, past and future, localism and globalisation, social inequity and consumerism"[1]. Within the new urban platforms of post-modernity, in the *global*[2], *diffuse*[3], *intangible*[4], *infinite*[5], *liquid* and *networked city*[6], fashion is culture precisely because of its ability to create meaningful connections in the relationships between individual/company/territory.

The complex planetary web of flows, people, goods and information plays a primary role in the understanding and interpretation of contemporary culture. The "liquefaction"[7] of traditional instances leads back to hybridisations and syncretisms belonging to different cultural systems. Consumption choices become shared values and cover the different scenarios available, not as an offer of products, but as a service-product. So much to reduce the products' reliance on technical-economic issues and increase; instead, the need to creatively integrate what is technically possible with what is socially desirable. Creativity which is a link between the sense of reality and the sense of possibility and where "a new result has meaning, if it has any, by establishing a link between elements known for a long time, but until then scattered and apparently unfamiliar one to the other, it immediately puts order where chaos seemed to dominate [...] Inventing is discerning, and choosing [...] among all the possible combinations, the most prolific will be those formed by elements taken from very distant sectors" [8].

Fashion creates multiple and multidimensional trajectories that begin with the product and transfigure into communication across global retail networks, both physical and virtual. Fashion is based on design; on a series of actions that are anticipations, productions of meaning and generators of cultural phenomena. Creativity activated by fashion is at the centre of a plot of complex relationships where rhetoric and discourse in legitimising one's products introduces into the social, cultural and local spheres an extended network of tangible and intangible meanings; new symbols, cultural codes and words that make it possible to overcome pure formal research.

The contemporary city remains anchored to its historical heritage, but at the same time, it is transformed by new transits, fragmentation and temporariness. Globalisation, tertiarisation, relocation of businesses, the transformation of the social and cultural demand of the population, diffusion of new

information technologies, new social exclusions, migrations, de-territorialisation, are some of the factors at the basis of that process of transformation that has led from the geography of places to that based on flows.

NEW FASHION GEOGRAPHIES BETWEEN PLACES AND FLOWS

The passage from the geography of places to the geography of flows not only does not eliminate the idea of places. It also shows a proliferation of values which - instead of deriving from the modern degeneration - result from the acquisition of some of its achievements. Urban expansion leaves the ground to the reuse, the old and the new find a compromise through the redefinition of spatial attributes, assigning new functions and meanings. Resemantization and re-functionalisation become an alternative to demolition and provide a more ecological and sustainable urban vision.

The new city was born from the heart of the old as a response to a changed social demand, now more connected to participatory policies, inclusion and cultural enhancement. A city meant as a field of experience. A place that gives meaning to reality as it is guided by those phenomena that directly influence the processes, relations and interconnections between the different actors of the system. These are social, economic and political realities that eliminated and dissolved for a long time the traditional concepts of limit, border and edge and, thanks to technological innovation, activate new processes of socio-territorial continuity, aware of the fact that "the limit is not a spatial fact with sociological effects, but it is a sociological fact that is spatially formed" [9]. Alongside the phenomena of globalisation, those of glocalisation become more and more widespread. If globalisation tends to standardise behaviour, production and consumption, glocalisation allows, on the contrary, the valorisation of local and territorial peculiarities. The local system is not isolated but instead establishes meaningful and continuous relationships with the global one.

In this system of quasi-equilibrium, between local and global, where there is no opposition but coexistence[10], de-territorialisation supports new processes of socialisation and sharing and at the same time activates feelings of connection with the place of origin.

In its relationship with the digital, it allows the emergence of peculiar virtual communities linked by geographical and identity similarities that co-create platforms where collective phenomena are often related to everyday life activities and common people. In this context, the brand's product has evolved to include services and experiences as an economic value. Fashion goes beyond the exclusive focus on clothes and covers all fields of the social and political spheres; it concerns objects, events, places and people and, at the same time, it introduces processes of urban creation and re-creation favouring new global identity aggregations where "new neighbourhoods escape the logic of the metropolis, belong to the networks of globalisation, to its cities or immaterial nodes, have another spatiality and another temporality, while they also colonise the city and work for its transformation into a global city" [11].

These are the capitals of fashion, symbolic phenomena capable of invents new territorial traditions based on that set of practices, generally regulated by rules openly or tacitly accepted, and endowed with a ritual or symbolic nature, which aims to teach specific values and repetitive rules of behaviour in which continuity with the past is automatically implicit[12].

In this, we recognise the symptoms of a design process that evolves through actions, even experimental ones, of building a self-identity starting from a path of insertion and integration with the existing.

FASHION AS AN ACTIVATOR OF HYBRID URBAN SPACES

In this changing context, we are not witnessing the replacement of consolidated tradition with new design realities, but their contamination and hybridisation. Fashion changes the *image of the city*, and

it operates that connection between urban morphology, perception and mood already highlighted by Lynch. “The environment suggests distinctions and relations, and the observer—with great adaptability and in the light of his purposes—selects, organises, and endows with meaning what he sees. The image so developed now limits and emphasises what is seen, while the image itself is being tested against the filtered perceptual input in a constant interacting process. Thus, the image of a given reality may vary significantly between different observers” [13]. But again. Fashion contributes to the invention of everyday life, re-functionalizes entire territorial areas and gives a new meaning to public space and urban redevelopment through new practices related to cultural production. Museums, art galleries, hubs of startups led by fashion brands promote new ways of working in everyday life14, capable of stimulating in the new “creative class” those “thousands of tricks, deceptions, simulations through which the extraordinary creativity of the common man is manifested”, which in the context of the contemporary change the scale of intervention also operating at a territorial level. They are the result of intentional urban founding processes capable of contributing in a decisive way to the economic and cultural development of cities.

Innovative, flexible and vital spaces capable of activating collaborative relationships with fashion brands starting from the new social media contexts, which as a result of globalisation processes are shaping new multi-cultural geographies.

NEW FASHION TRAJECTORIES, BETWEEN NATURE AND BUILT SPACES, BETWEEN PRODUCTION, RETAIL AND ART

In this context, fashion, intended as a Cultural and Creative Industry[15], defines its essence not only from a productive and economic perspective but also, and above all, from a cultural point of view[16].

This concept of fashion is enriched in the contemporary of new hybrid scenarios, in which products and projects at different scales overlap material and immaterial, real and digital artefacts. “Space is an essential framework of all modes of thought. From physics to aesthetics, from myth and magic to common everyday life, space, in conjunction with time, provides a fundamental ordering system interlacing with every facet of thought” [17].

Fashion thus becomes capable of defining not only new architectural aesthetics - thanks to the many collaborations between architects and designers for retail and headquarter projects - but also of contributing to urban and territorial development, defining precise trajectories and connections between different places: Prada - in Milan - has been able to be a driving force in the creation of urban expansion and regeneration paths that connect the city centre, where the brand's boutiques are located, with the semi-periphery where the company's headquarters are located and with the suburbs, where the Prada Foundation, designed by Rem Koolhaas, was inaugurated in 2018. The Foundation expands the experience of the brand's retail strategy, defining a new urban expansion of the city of Milan. The city here is no longer seen as “a mosaic of episodes, each with its particular life span” 18 but as a new interaction between different functions and scales of design.

We are witnessing here the definition of a system (productive and cultural) capable of producing actions which generate cultural, architectural and urban phenomena. The spatial project becomes in this context not only an “instrument” of self-assertion, of this or that fashion brand but also an engine of urban and territorial development that sees the fashion industry as one of the activators of this development, which can create new synergies between the ephemeral (inherent in the continuous changing of fashion) and the long term (both design and permanence) of architecture.

Fashion is more and more understood as a “social fact”19, which can achieve new synergies capable of reshaping not only the taste, but also production processes, and define the development of specific

urban areas as well as geographical areas, thanks to the development of productive, commercial, cultural and creative training centres.
Fashion acts on urban space where "new neighbourhoods escape the logic of the metropolis, they belong to the networks of globalisation, to cities or immaterial nodes, they belong to another spatiality and another temporality, while they colonise the city and act for its transformation into a global city" 20. Cities, places of production and education define "the meanings of space and place depend on the interrelationships among physical and human activities located in space, and man's relationships to the environment occur in the context of space and place" [21].

FROM LOCAL FASHION CAPITALS TO GLOBAL FASHION PATHS

Over time, a system of relations between the "fashion capitals" that move between the 35th and 52nd parallels[22] has been defined and since the Sixties of the last century have defined an essential trajectory of economic expansion and development of cultural and creative realities (Milan, Paris, London, New York and Tokyo for years have been considered the only "fashion capitals").
A research conducted in 2019, by mapping the development of the various fashion weeks at the local level but with global impact[23], has revealed new cartography, which has been enriched not only thanks to new trajectories (cities capable of shaping the role of new creative capitals linked to the global fashion system) but also to more ephemeral trajectories that move along ever-changing geography, which from season to season moves globally to generate events that are as ephemeral as they are exclusive but at the same time mass-oriented, thanks to the use of contemporary communication channels. The research identified countless destinations of an ideal fashion journey around the world: an itinerary consisting of fashion shows staged in places outside the traditional routes. The result is a new map that contains the consolidated urban realities related to fashion (such as New York, London and Milan) but also locations and architecture, often considered at the margins of the system (such as the Great Wall of China or the Trevi Fountain in Rome used by Fendi in 2007 and 2016, respectively, as a location for a fashion show; or as the Miho Museum in Kyoto or the Museo de Arte Contemporáneo de Niterói in Rio de Janeiro, locations used by Louis Vuitton in 2017 and 2018 for the presentation of the Cruise collections). (Figure 1)

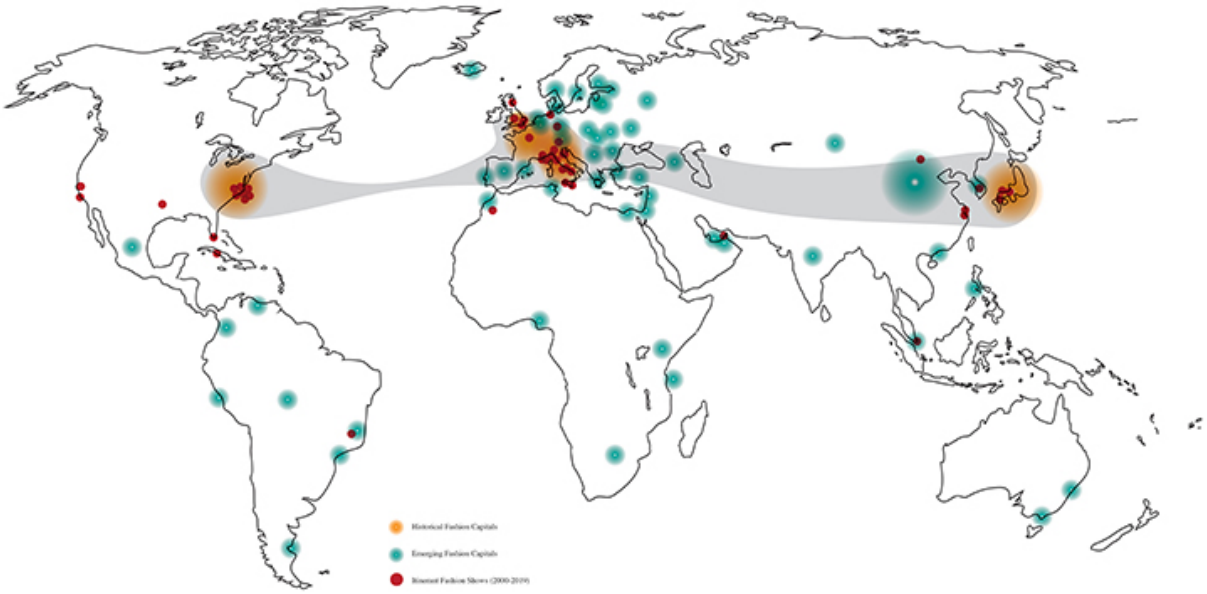

Figure 1. World map that highlights the current network of relationships built by fashion - in the long and short term - between the historic fashion capitals, emerging capitals and temporary locations for fashion shows from 2000 to the present day. (graphic design by the authors)

A relationship between space and fashion somewhere between ephemeral and permanence, between scenography and architecture, fashion is increasingly becoming an asset for experimentation and architectural, urban and territorial development.

FASHION UTOPIAS: THE NEW "HUMANISTIC CAPITALISM"

The fashion system, especially in Italy, has been able to define different entrepreneurial experiences that have witnessed a dialogue of great interest in urban space and architecture. We are observing projects such as the one realised by Brunello Cucinelli in 2000 who, in Solomeo, in Umbria, realised his dream of "humanistic capitalism" by defining the restoration of the Solomeo village according to a design of a manufacturing factory in the form of an ideal city of Renaissance matrix. A productive place in which, however, it is difficult to read the spatial and functional boundaries between places of sociality, production and culture. A village-factory that has very little of the traditional concept of a manufacturing site. Factory-village designed first of all for workers and not for the production, a space at the service of the employees, multifunctional, in which the traditional concept of the production chain, of phases of work and control, disappears in favour of urban design of the city in which - contrary to historicised examples of the late nineteenth century, of city/factory such as Crespi d'Adda, near Milan, where the centrality of manufacturing defines the urban design of the industrial settlement - central are the social and cultural functions such as the theatre, the arena, the cellar, places that define what Brunello Cucinelli himself calls the "amiable periphery": a non-place that becomes a living place and re-appropriates itself of its social function.

FROM OLIVETTI TO GUCCI'S ARTLAB: FASHION SPACES BETWEEN PRODUCTION AND COMMUNICATION

Production spaces for fashion also become tools of communication, often used for advertising, architecture that represent design, social, cultural and artistic workshops. Spaces become, for fashion, a real place of experimentation and not only for the staging of performative fashion shows,

architecture - its form and its use - becomes a field of research in which fashion broadens the spectrum of its functions and meanings. Space expands more and more, defining new types of places where commercial, productive, communication, conservation and exhibition spaces merge. Gucci's ArtLab, for example, in the Florentine suburbs, extends the concept of the factory conceived by Adriano Olivetti: space becomes capable of respecting nature, beauty and, above all, man, but also of creating an artistic workshop, white box, a surface at the service of artists who, with their intervention, give shape to a new industrial aesthetic by defining a "clear testimony to the link with the territory, that is, a place to learn and develop skills, a laboratory of ideas" [24]. The Gucci Museum in Florence also represents a multifunctional space in which culture (Gucci Garden Galleria), retail (Gucci Garden) and food spaces (Gucci Osteria) merge into a single concept; as well as the presence of Prada inside the Galleria Vittorio Emanuele II in Milan (whose restoration was sponsored by the Milanese brand) in which Prada has not only increased its commercial presence but has created a system of commercial spaces (both fashion and food spaces under the Marchesi brand) and cultural spaces with the Prada Observatorio in the attic of the Gallery. (Figure 2)

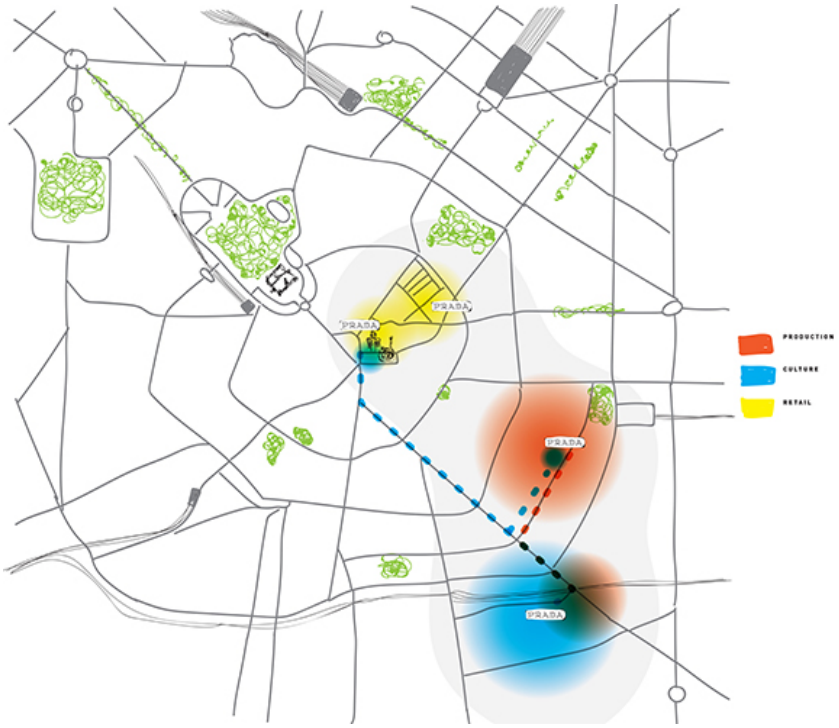

Figure 2. Map of the city of Milan showing the impact of Prada's different activities (retail, production and culture) on the urban structure of the city and on the development of the periphery.
(graphic design by the authors)

CONCLUSION

If Prada and Gucci work on the architectural and urban scale, the Piedmontese brand Ermenegildo Zegna consolidates its identity linked to the Biella area (a historic Italian manufacturing district linked to wool weaving) by creating the Oasi Zegna, a program of territorial enhancement that defines a new synergy between fashion and territory. With this project, started by Ermenegildo Zegna in the thirties of the last century "The care of the territory is part of the management of the company, moulding the culture of the company itself and becoming not only an aim but also a principle to leave in inheritance

to future generations. In Ermenegildo Zegna's entrepreneurial approach the landscape – interpreted as a pleasant immersion in the mountain environment – becomes part of the brand and blends with it, transforming the language with which "enlightened" entrepreneurship presents itself in the national and international contexts. The wish to bequeath production to the natural and territorial context in which it takes place is manifested through the search for a connection between the architectural structure and the beauty of the landscape, thus evolving, especially in the case of Ermenegildo Zegna, into a necessary condition for the welfare of the people that give life to the company and the vehicle for a fashion company that aspires to long-term success" [25].

Architecture and fashion thus define a renewed cultural and symbolic dimension capable of creating elective relations with the territory and introducing as many different meanings: symbols and cultures. Fashion is increasingly becoming the driving force behind spatial practices. It elaborates and re-elaborates a series of linguistic experimentations based on creating, understood as "going beyond", as an actor capable of designing new relationships between the familiar and the new, between the continuous and the discontinuous.

NOTES

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EVALUATING THE IMPACT OF DEVELOPMENT POLICIES ON INFORMAL GROWTH USING QUANTIFIED SPATIAL NETWORK

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INTRODUCTION

Urban growth and informality

Informal urbanism, or its most frequent symptom – the informal settlements – have been an inevitable part of rapidly growing cities in the developing world in the past few decades. Since the inception of the term, informal, the notion of informality has been articulated among the professionals and academics from along a wide range of disciplines, and with human daily life and behaviour being the centre of these discussions, the definition of informality has been refined with regards to its different attributes.

Initially coined by W. Arthur Lewis, informality was interpreted as a dualistic model of interaction between the modern and traditional sectors in underdeveloped countries[1] where the dominance of mainly modernized processes out-ruled the validity of any other form of interaction. With the inhomogeneous availability of resources to communities and inability of marginalized communities to assert their right the informality mainly evolved around economic activities that due to various reasons could not be represented within the legal framework. Later, throughout his research in Africa Keith Hart defined informality based on availability of income opportunities[2]. The fundamental change in the dominance of capital in regulating almost all aspects of an everyday life, where the application of modern economic process has no supporting infrastructure, lead to an even bigger gap in these opportunities, which was at the same time growing all over the *underdeveloped* world.

Manuel Castells later created a more precise yet more inclusive definition of informality that included any unregulated production of goods and services[3] and around the same time Hernando De Soto considered informality to be not just the unregulated participation of citizens in productive processes but also the activities for which the state has created a system of exemption but has not provided benefits and protections [4]. These unregulated and *irregular* activities of communities in the rapidly growing economies have extended vastly within the urban settings and has shaped the physical form of an urban whole.

The rather unstable political scenery in this context, usually added up to economic unrest, which in turn shaped up a lot of unregulated production of urban spaces. Bayat in his studies of informality in late 70s and 80s in the Middle East construes informality as the quiet encroachment of the poor [5]. The

marginalized communities that have not been a part of the development schemes in the urban areas within this context shape an ever-increasing part of the cities in ways that are not precedented.
Subject to urban studies, the informal sector is now posing more questions to design, planning and policy-making processes than before. With relatively recent studies on the organic form of these settlement and its correlation with its internal complex social structure, modelling these settlements could explain how the emergence of informal settlement is partly due to lack of scaled development policies, and are indeed a symptom of the dynamics of growth that is fed by the development programmes in the developing countries.
Spatial network models such as road-centre line models used through Space Syntax technologies, that is fundamentally created around aggregate movement can show to some extent how human settlements are created and evolved in relation to other urban elements. In this sense informality is not a rigid part of a dichotomy but rather the informal settlements can be placed on an integration/segregation spectrum [6] to which, the social structure responds. The quantitative capabilities developed recently even suggest these bottom-up creations as complex adaptive assemblages[7].

Political decisions and the emergence of informality

Within a geopolitically tense region, Iran has confronted numerous political and economic conflicts since the former monarch decided to quickly push the country towards a modern industrialized state. Given the well-established traditional social, cultural and economic structures in the country, the changes imposed on the country created as much ambiguity as they brought order. Quick transition from an agricultural, labour-intensive economy, towards enforced industrial plant, changed the way accumulation of wealth, labour market and population happened.
In this case, with the support of the US, the former monarch of Iran, the Shah, began a series of socio-political reforms that tried to oppose the uprising left movements influenced by the soviets. These included *land reform, nationalization of the forests, the enfranchisement of women, the literacy crops and profit-sharing schemes* [8]. Within this rapid changes, there began a series of trends within major cities that had lasting impact on the way cities grew and operate. There is massive migration towards the cities, middle class expands.

Informal growth with the metropolitan area of Tehran

Growing rapidly, the metropolitan area of Tehran has been the forefront of implementation planning policies since the inception of systematic comprehensive urban planning and policymaking in Iran. As the capital of a country in an unstable region, Tehran has faced periods of turbulence in the economy, political structure and social order. While the city itself grew as the dominant economic node, it faced an immense immigration inside and outside of the urban administrative boundary. Many of them settled quietly, either individually or more often with their kin members, on unused urban lands or/and cheap purchased plots largely on the margin of urban centres.[9]. Demographic data shows that almost the same number settled within the urban area as they settled and formed the satellite settlements.

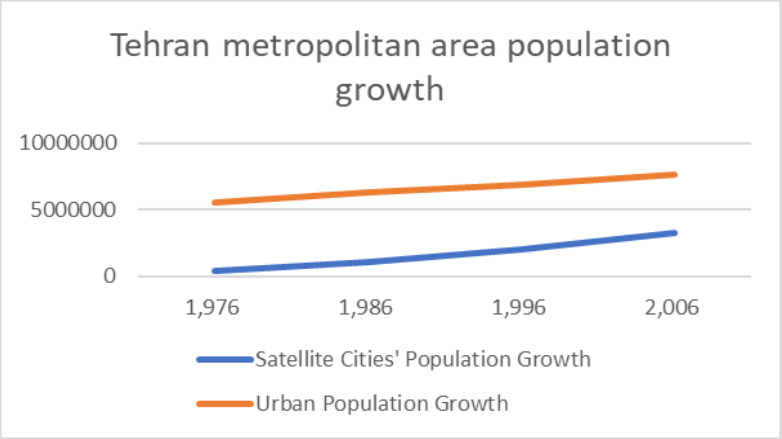


Figure 8 - Population growth in the metropolitan area of Tehran, source: Statistical Centre of the Municipality of Tehran 2006

Therefore, it can be argued that the current state of this metropolitan region is the result of both formal planning, and autonomous informal growth. The reciprocal impact of policy-making, and natural growth in the metropolitan area of Tehran has shaped its built form, and logically tracing the spatiotemporal development of the city would identify how the implementation of certain policies, have resulted in the way in which the system has evolved.

While the main intention in implementation of development policies in this context has been to address the growing population in an informed, and realize consistent prosperity, the intensification of informal growth in this region suggests otherwise. The physical boundaries of the city encroached, and segregated settlements grew in line with the infrastructure outward [10]. And in-spite of implementation of development policies, the informal sector grew bigger.

Where the policymaking and planning aimed to be comprehensive and inclusive of all urban dwellers, it seems that with the process of modernisation, and moving from purely organic growth to informed planned city, the number of communities not embraced by these policies have grown. And considering the simultaneous occurrence of the two, one may argue that there is a correlation between planning and informal growth. Investigating the impacts of planning decision on autonomous growth this research proposes that not only there is an indirect link between the two[11] but also the informal sector as an alternative to planned city[12] has been intensified.

DATASETS AND METHODS

Modelling the dynamics of change in this study, mainly open-source data is being used. The main spatial network model has been created using Open Street Map data, that is available to download through categories, off Geofabrik updated[13] database. This specific data set is categorized as roads and contains all the parallel lines for all the routes and directions of possible movement, which have been collected through user cell data, and edited by several editors worldwide. These movement lines from the *Openstreet* maps, can be downloaded by type and location and contain partially available metadata. Given that these lines are mainly generated through recognition of vehicular movement, for all the routes that are non-local connections, are generated for only one direction. Meaning that for a 2-way street, there are 2 and for each lane of a highway, or expressway, there are several parallel lines.

Figure 9 - Raw data from Openstreet Map (left) and simplified road-centre line model (right)

As mentioned earlier, the space syntax model used in this analysis – known as road segment model – is created using the above-mentioned dataset, it needs simplification and cleaning. This procedure deducts the lines to one segment between junctions that does not change the movement degree up to a certain limit[14]. Therefore, a critical step in creating a segment model using road-centre lines, is to download and frame the data, and run it through automatic and manual processes of simplification, through which, the space is represented through single road-centre lines. In this way the angular cost of movement is minimized, and the space is represented homogenously throughout the model.

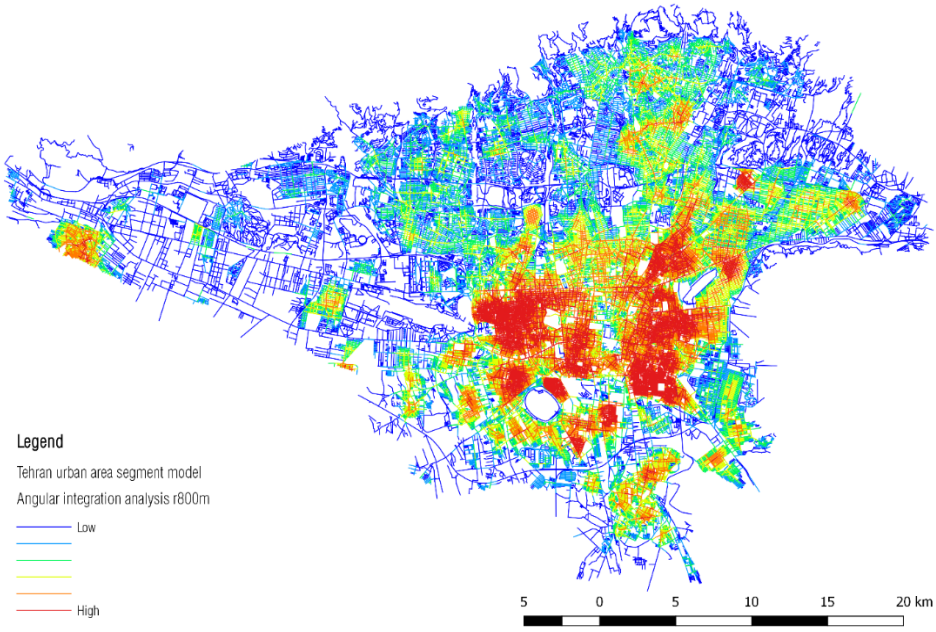


Figure 10 - Processed model of Tehran, showing dense movement routes in an angular segment analysis (r800m)

The main editing procedure in this model was done using QGIS 2.18.18, including the space syntax toolkit[15] which downloaded, cropped, edited and simplified the model, as well as exporting it to a *map info* format (.mif). The final model in the *.mif* format was imported into DepthmapX v0.5[16] and was put to *angular segment analysis* via various radii. This is to study how urban space accommodates movement through local, city wide and regional scale, and try and explain how the different fragments of the urban fabric are related. The outcome of the analysis for this model which took about 7 days of continuous running on a single core system, included analysis through various measures, within which

this analysis has only incorporated closeness centrality (Integration) and betweenness centrality (choice). Once the results of the analysis through these measures are revealed and used to address the common nature of the spatial network structure, further investigation into the combination of these measure, and their correlation with the other datasets is used to extract the conclusion.
Later the outcome of spatial network analysis model was re-imported into QGIS and juxtaposed onto an official dataset from the Urban Renewal Organization of Tehran, that manually mapped the dilapidated and malfunctioning urban blocks based on three objective criteria. These criteria included the penetrability of urban block, average plot size and stability of the physical structures in the block. Blocks in these datasets are framed by open-ended vehicular routes, therefore it complies with the road-centre-line segment model that was used in the space syntax analysis. For coherency, the average of the syntactic measures (i.e. mean normalized angular integration) values from the spatial network were plotted onto the vicinity of the urban blocks, and therefore each urban block, with one or more of the dilapidation conditions, would also have a mean *Choice* and *Integration* value at different radii.

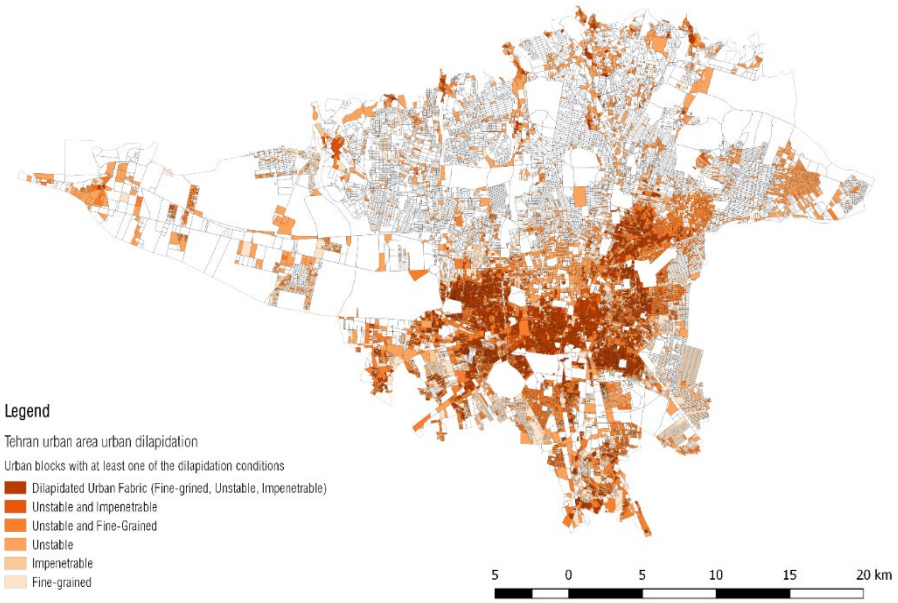


Figure 11 - Tehran urban area with at least one of the dilapidation conditions. Given that the density of the dilapidated urban blocks is in about the same area as the dense movement structure, gives a hint on the possibility of a relationship between the conditions of urban decay and movement characteristics.

The final dataset included 30014 features, that stood for each urban block in the legal urban boundary of the capital city of Tehran. From then on, cleaning and filtering the unnecessary data, numerical analysis and statistical model were built using Python Pandas and Scikit open source packages for statistical analysis. Accordingly, the result of these analyses and coming discussion are informed by a comparison between the open-source data, and official data from the governing body directly involved with issues of urban deterioration, physical decay, and therefore the methods are mainly targeted at increasing the efficiency of informed policymaking in such context.

RESULTS AND DISCUSSION

Having implemented the mentioned stages of preparation and justifying a coherent dataset for analysis, there were still steps to take in order to make usable sense of the results. As stated before, the

values of the syntactic measures were plotted onto the urban blocks (by the average of the values of the segments within the block). Therefore, the plots with 1, 2 or all the condition of physical urban decay, would have specific *Choice* or *Integration* values. Given that the core argument in this paper is to reason for an evaluation method for development programmes and policies without having to collect and assess the periodically surveyed status of the built environment, these new features of the urban blocks, could be used to address this argument.

An initial look at the dataset that excludes urban block with none of the dilapidation condition, shows that the highest number of the problematic urban blocks have the conditions *unstable* and *fine-grained* followed by blocks with only *fine-grained* condition. Thus, running and analysis on this variation of dilapidated blocks would require filtering among the variables with meaningful number of features as well as the measures that maintain meaningful correlation in this regard.

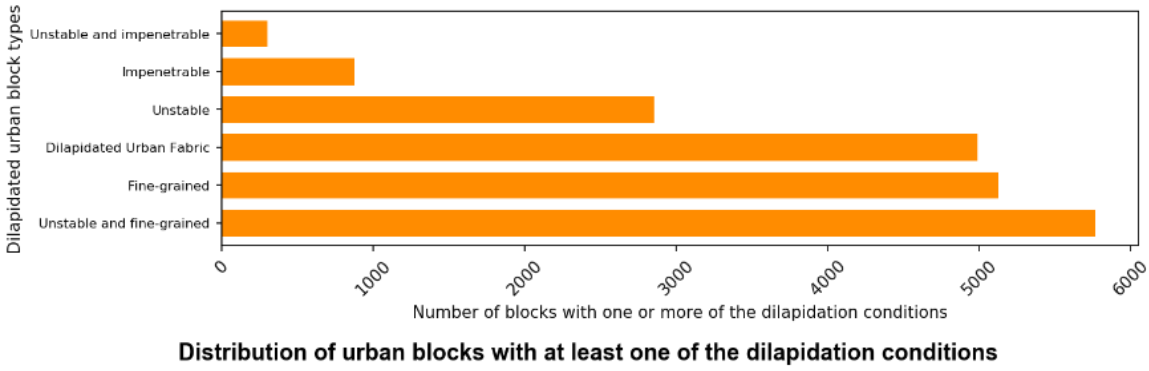


Figure 12 - The distribution of the urban blocks with one or more of the urban dilapidation conditions according to the Urban Renewal Organization of Tehran - this criteria includes the size of the plots, stability of the physical structures in the plots and the penetrability of the blocks measured by the width of the access within the block – As almost half of the urban blocks in this data set do not have any of the mentioned dilapidation conditions, they are filtered out of this analysis.

Given the variety of the measures and block types, an overall correlation heatmap would help to suggest what would be the quick and yet significant pair to investigate between all measures.

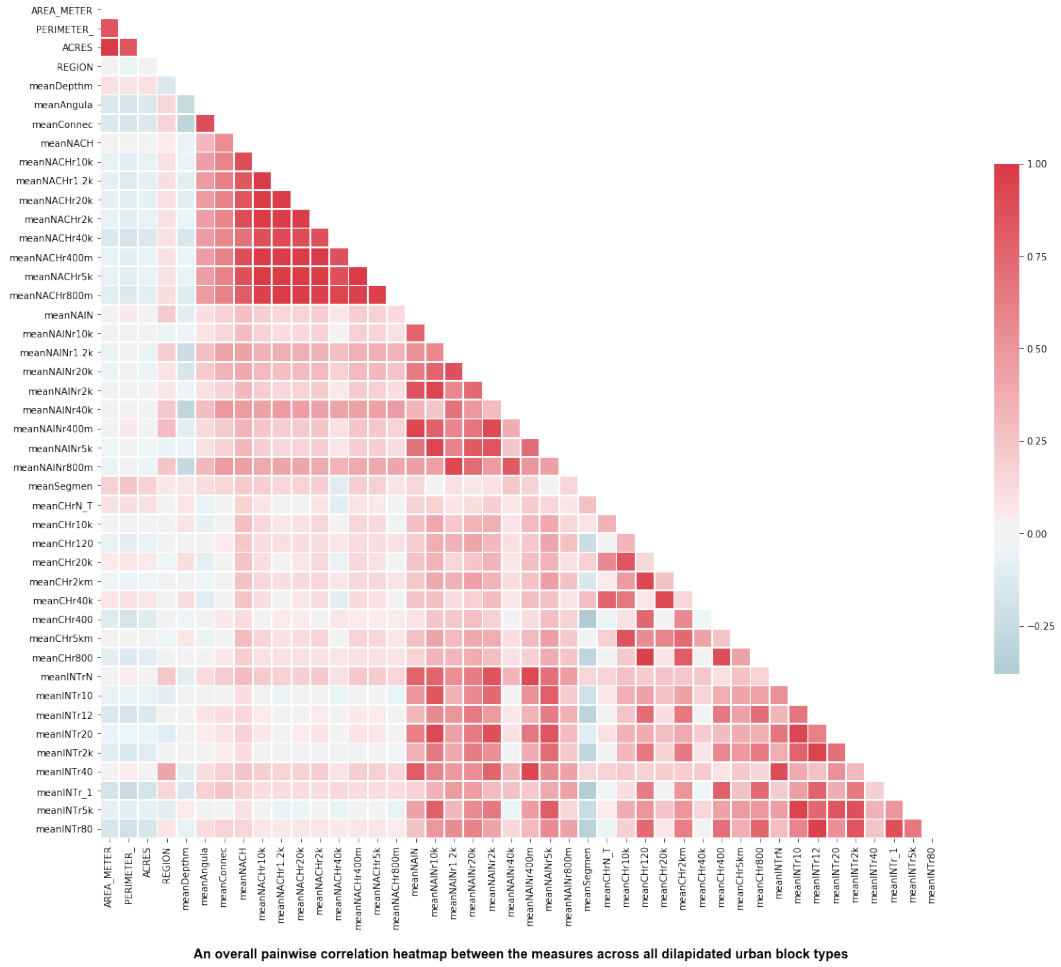
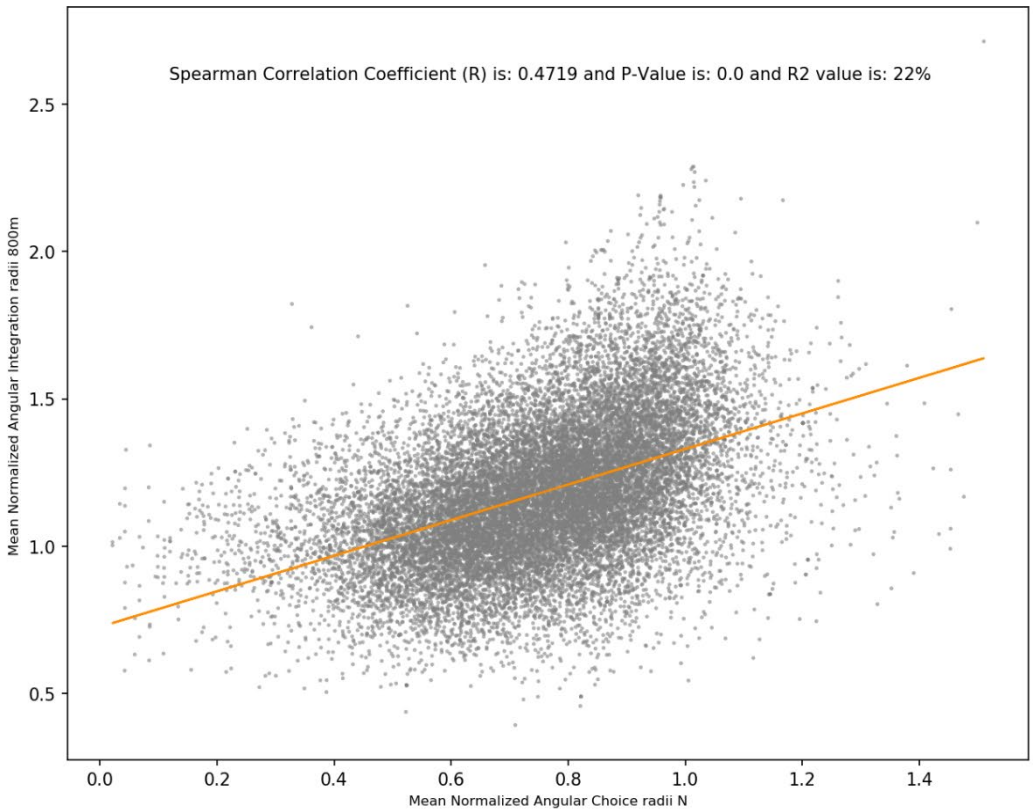


Figure 13 - A pairwise correlation heatmap across all normalized and non-normalized centrality measures that resulted from angular segment analysis on the model, and then plotted onto the urban blocks. This model shows that there is relative correlation between the local (under 1200 meters) closeness centrality and global (above 20km) betweenness centralities are evident.

Evident correlation between local integration (closeness centrality) and global choice (betweenness centrality) (Figure 13) intrigues a series of more focused and in-depth investigation on the nature of this correlation and whether this can be used as an indicative measure in understanding how the urban fabric evolves, and whether the developing programmes and policies. In this specific case and availability of official data for comparison, these initial correlation outcomes could be inspected further within the different types of urban blocks with dilapidation conditions (Figure 14). This clarification would occur on the inspection of movement characteristics in these various urban blocks. Doing so, a series of subsets of data frames from the variety of different urban types were created.



Correlation between NACH (rN) and NAIN (r800m) for blocks with at least one of the dilapidation conditions

Figure 14 - Correlation analysis between the Choice rN and Integration r800m across all urban block types with at least one of the dilapidation conditions

With significant results from this analysis same Spearman Correlation analysis was done on each of the urban block types to investigate the extent to which the results from this analysis are valid and whether there is consistency of outcome across all urban types. Here are the results to analysis on the sub-datasets:

	Dilapidated Urban Fabric (All Three Conditions)	Blocks with only fine-grained plots	Blocks with only unstable physical structure	Blocks with Unstable physical structure and fine-grained plots	Blocks with narrow access (impenetrable)	Blocks with unstable physical structure and narrow access
Spearman Correlation Coefficient - R	0.4567	0.5098	0.4336	0.4528	0.40	0.312
P- Value	2.48	0.00	1.27	4.71	3.13	1.95
R^2 Value	0.2	0.25	0.18	0.20	0.16	0.09

Table 1 - Correlation values between the local normalized integration (r800m) and global normalized choice (rN)

Having a quick look at the result from this analysis, it is evident that this correlation between these spatial characters of the urban block across all the dilapidated urban block types are not consistent. Yet there is a significant correlation between the local integration and global choice in the blocks with only

fine-grained plots (Figure 15). Given that the P-Value in this case is also equal to 0.00, the null hypothesis in this case can be rejected and therefore, this correlation maintains its significance as an indicator for measuring dilapidation without manually surveyed data.

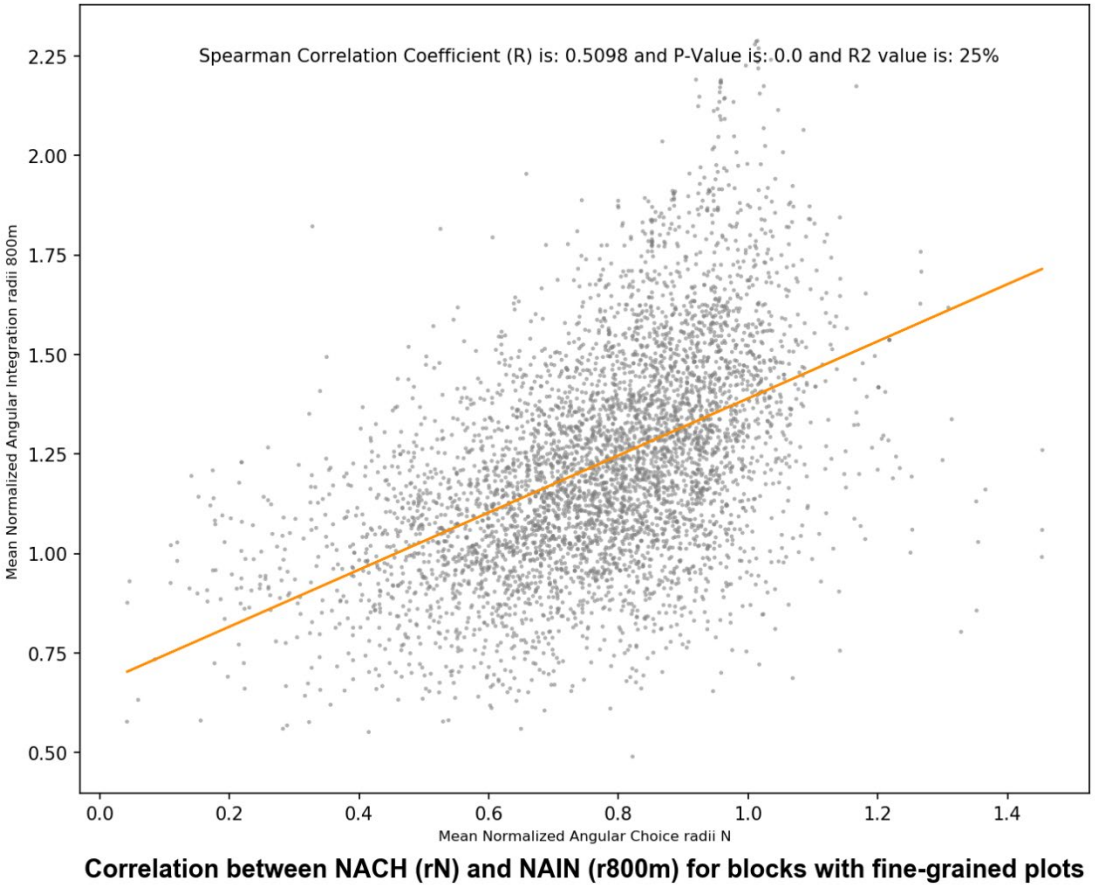


Figure 15 - Correlation between the global normalized betweenness centrality (Choice) and the local normalized closeness centrality (Integration) in the dilapidated urban fabrics that are identified by their fine-grained plot size condition, shows significant relationship between these two spatial characteristics that could identify change as the development policies are being implemented.

DISCUSSION

Interpretation and understanding the results from the linear regression analysis to make inferences on the broad subject of urban decay, would require careful considerations. Given that the ultimate use of these inferences would inform policies that deal with everyday life of urban dwellers, it takes more than statistical deductions to interpret the results. On the other hand, the recent programmes and policies in regenerating livelihood in this specific context, is profoundly impacted by a subjective approach, and yet the process is not controlled through an iterative protocol. The result from this research here shows that at least for one of the dilapidation conditions – the fine-grained plots – a combination of space syntax measures can be used to iteratively evaluate how the development policy – in this case merging the fine-grained plots and rebuilding the physical structure – is progressing.

The interpretation of why these measures is indicating such correlation in the blocks with fine-grained plots could be read through the space syntax theories where the configuration of urban structure could reason for aggregate behaviour of the settlers. As Hillier mentions, we do not need to acquire all urban elements in detail in order to infer a certain typology from its structure[17]. In this sense, the urban

structure could show us a lot just by showing how the natural movement takes place through the city. In this case, high node count, causing the high local integration could reason relative movement density that for concentration of people and activity – as is the case in the urban blocks with fine-grained plots – while at the same time being placed on a highly connected global network.

CONCLUSION

This study is an effort to provide some suggestions on how the current development programmes and policies on the issues of urban regeneration in Tehran could be evaluated, using space syntax methodology and theories. The process of using crowd-sourced data in evaluating the development policies, could theoretically be quick and useful way in informing the ongoing and prospectus development programmes and policies. On the other hand, with the informal growth in the context of the developing world, both inside and outside of the legal boundaries of urban areas, incorporating the suggested methods in this paper could prove successful in certain ways. Specifically, as there is a problem of informal urban growth within the city of Tehran leading to over crowdedness and physical decay, the controlling mechanisms in the planning system rely on manual surveying of whether the consolidation of smaller plots, widening the access routes and rebuilding the physical structures are effective or not. The model used in this model suggested that through intrinsic characteristics of such blocks that can be measured through space syntax methods, the change in these blocks can be evaluated without having to manually survey the change.

Although this method is far from being an independent method of analysis, there are some suggestions in the success of the measure discussed here that can be further investigated into a more reliable method, and eventually a measure of indication using only crowd-sourced data.

NOTES

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ADAPTATION TO CLIMATE CHANGE IN THE ADRIATIC COASTAL CITIES. OUTDOOR URBAN SPACES MEASURES FOR THE SHORT TIME SCALE

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THE EFFECTS OF CLIMATE CHANGE, NO LONGER EXTRA-ORDINARY PHENOMENA

As is known, climate change events combined with the vulnerability and exposure factors of a territory and of its population, can lead to risks for urban structures, for economic activities and last but not least for people's safety and health. The impacts on the cities of the Mediterranean coastal area, subject to intense phenomena of anthropic pressure which reaches incrementally greater peaks during the summer, are measured in terms of concentration of intense rainfalls, decrease in average rainfall and increase in drought phenomena and average temperatures (more than in the rest of Europe), as well as an increase in the mortality risk related to the effect of heat waves and of urban heat islands, and increasing of habitats that could potentially favor the proliferation of disease-carrying vectors[1]. The chronicization of extreme climatic episodes has become part of everyday life: events of this nature can no longer be considered as extraordinary and localized calamitous phenomena, but rather as ordinary contextual factors[2] to be understood and integrated within a reading picture of a specific site.

The intensification of the events and the seriousness of some of them is convincing the public opinion that mitigation measures will no longer be sufficient on their own to meet the challenges of climate change[3], and that there is a need to identify a set of possible adaptation measures to be implemented quickly through development plans, financing and shared strategies. The European Union, through the EU Adaptation strategy, has been promoting the actions of Member States since 2013, coordinating, encouraging the sharing of experiences and promoting the creation of adaptation actions in sectors vulnerable to climate change.

Climate change adaptation strategies require purely local characterizations according to the identification of site-specific risks and to the formulation of possible climate scenarios, based on in-depth knowledge of the territory, on the socio-economic and geographic-territorial context of reference.

In fact, currently most climate change events occur at a local level and hardly become so severe as to extend simultaneously to a larger scale, such as to cause the same effects to a national magnitude. Therefore, adaptation actions must be implemented at local level, in order to allow local communities to respond first to impacts. Adaptation also requires trans-disciplinary approaches to be carried out necessarily also through information, education, communication, creating awareness by the

institutions, through participatory processes, governance, research, as well as through structural measures.[4]

The adaptation measures must take into account the timing of implementation of the interventions, taking note of the fact that "acting too soon can risk locking into inappropriate outcomes, but acting too late can risk locking into considerably higher impacts".[5] In fact, unlike what happens for earthquakes, it is still not possible to refer to an intensity measurement scale referred to climate change, thus determining the need to adopt approaches capable of including different degrees of variability, through strategies and actions that envisage measures capable of giving effective results over the long term.

Framework: the joint SECAP project

This paper is based on several partial results of the ongoing EU Interreg Italy-Croatia Joint-SECAP (Joint strategies for Climate Change Adaptation in coastal areas) project which aims at identifying shared intervention strategies and adaptation measures to climate change in the Adriatic coastal cities by synergizing skills and raising local communities'awareness. The network includes 9 Italian (Unicam –SAAD, Municipality of San Benedetto del Tronto, Regione Abruzzo, Municipality of Pescara) and Croatian (IRENA, SDEWES, Primorje-Gorski Kotar County, Split-Dalmatia County, Municipality of Vela Luka – Korcula) partners coordinated by the University of Camerino- School of Architecture and Design (SAAD) who experiment a joint SECAP methodology on target areas on both sides of the Adriatic Sea.

Each partner has identified a target area on which it is focusing specific site analysis and on which the local public institution will develop SECAP plans. In some cases, the target area is a highly populated metropolitan area, in other cases it can be a consortium of municipalities. All of the target areas have in common the fact that they are subject to tourism during the summer and that in some way they have already been affected by climate change. Overall, around 700,000 people live permanently in the Joint-SECAP target areas, and they become many more during the tourism periods.

The project is structured in two phases. The first phase involves the context analysis for each target area through the recognition of plans and measures that each territory has already adopted and implemented, also with the analysis of funding opportunities. In this first phase, the partners have carried out risks and vulnerabilities assessments at the district level through the development of impact chains based on a shared methodology.[6] The development of impact chains allows to highlight the specific risks of a territory and to analyze vulnerabilities, hazards and exposures through a list of indicators; the actions that later will be implemented through the development of SECAPs will take these specific risks into account. The second phase involves the development of climate scenarios for the identification of common adaptation actions which will be included in the joint-SECAP plans and that will be elaborated by each partner for each target area, based on the sharing of experiences, measures and data on urban and environmental contexts. Partners are currently defining the two possible climate scenarios for 2030: a scenario 0, that describes the target's area evolution if no intervention on vulnerabilities and risks is undertaken, and the identification of an "optimal scenario" which aims to achieve the best possible environmental benefits of the Action Plan. "Reasonable Plan alternatives" through the activation of a participatory process with stakeholders, local and regional authorities are to be expected.

Among the various aspects that emerged from the first phase analysis and in particular with the impact chains development, there are several recurring climate related hazards that affect more or less all of the target areas: heat waves, droughts, extreme precipitation events and heavy hailstorms. The main

sectors that could possibly be affected climate change related risks in the 8 pilot areas are: tourism, transportation, energy production and distribution, industry, ecosystems.

The outdoor urban space as a potentially endangered environment

Citizens are attracted and spend more time in places that offer elements of interest, stimulation and / or a certain degree of environmental comfort; they appreciate the spaces that host events or activities both in the city center and in the peripheral areas and consider an open urban space more or less interesting also according to the functions and to the multitude of people that they are able to attract and welcome. There is a close and unequivocal relationship between the quality of the space "between buildings", the presence of citizens and the types of activities that users carry out there.[7] Furthermore, outdoor spaces for the community that are strongly connoted and linked to the territory can symbolically constitute an element of local identity, strengthen the sense of community, and enhance security and social cohesion.

It is also known that outdoor urban space plays a crucial role for the environmental, economic and social well-being of citizens, in particular since it can create conditions of safety and social inclusion,[8] expand the possibilities of movement and therefore reduce the conditions that lead to sedentariness, contributing to the improvement of public health.[9] Among the factors that can incentivize physical activity, the literature highlights both functional-social and psycho-perceptive ones: in particular the attractiveness of an outdoor space can be determined by its qualities, by its capability of making people feel safe space,[10] but also by the level of accessibility and maintenance. In other words, to be usable by citizens, the cities' outdoor space must guarantee minimum quality levels, they must be easily accessible, safe in ordinary conditions, but also in relation to extreme or sudden climatic events which, as we understand, will increasingly be part of ordinary development.

The usability of outdoor urban spaces of coastal cities could be at risk, due to a variable series of widespread factors that include their physical conformation, their position, their proximity to infrastructures and water bodies. In case of climate change events, outdoor urban open spaces can often become uncomfortable, unusable or even dangerously damaged for a longer or shorter period of time. These areas are among the most vulnerable to climate change and in particular to flooding[11] or to urban heat island effects: it is through these spaces that some of the most tangible climatic risks materialize and is therefore essential that adaptation measures must focus on these urban areas.

In the past years several coastal cities, Rotterdam, Vancouver, Copenhagen, Hamburg, Melbourne, have adopted integrated climate change adaptation plans that suggest how this topic could be considered as a double opportunity: on the one hand increasing the resilience level of the city and on the other, improving the amount and quality of outdoor spaces for the community, urban parks, walkways, sports and recreational facilities, and/or extending ecological networks or slow mobility networks.

Through the identification of a double level of resilience, one related to an engineering point of view, strong and capable of guaranteeing the functionality of the load-bearing parts of the city and maintaining a state of stability during the climatic events, and one more related to an ecosystemic matrix, which admits the existence of possible intermediate states of balance, through the possibility of deforming, adapting and changing conformation without returning to the initial state,[12] it is possible to identify a series of opportunities for citizens, create added value, increase the presence of activities and integrative functions.

Technologies for the outdoor urban space adaptation, as a set of options immediately applicable

The measures that will stem from the joint-SECAP project, as for other SECAPs, will require application processes capable of allowing their assimilation within the ordinary territorial management tools, taking time for their complete integration, often in the order of several years (medium-long term). In this waiting time, however, some urban contexts, in order to maintain their qualitative connotations of livability, may need prompt measures capable of providing accurate solutions, immediately applicable. Implementing and developing practices in medium / short time to address nodes regarding the connection between strategic-planning aspects and operational-constructive ones[13] could be considered a first and immediate tactical phase, that includes actions that could later translate into ordinary programming with medium-long time applicability, facilitating the transition to these more permanent measures.

In this direction, several existing best practices on the international scene help us prefigure three categories of immediately applicable measures which can be integrated together, and with different sets of implementation possibilities.

1. Punctual retrofit interventions on outdoor urban spaces, plant systems and structures, that are already considered vulnerable to the effects of extreme climatic events. The category includes actions and measures aimed at replacing materials, re-naturalizing watercourses, permeabilizing surfaces and pavings, replacing plant systems and securing spaces. The field of application of these types of interventions are referred to: the subsoil, the external surfaces, the water basins and the waterways, the green system, the roofs.
2. Interventions that could enhance the spatial conformations of certain urban spaces, and consequently the connection between these settings. As some urban areas are more prone to impacts of extreme climatic events, in the same way other spaces are characterized, or could be characterized through small modifications, for a high level of resilience or for the ability to mitigate climate change impacts. For example, the courtyards of historic buildings could mitigate the urban heat island effect, thanks to some of their building materials, their spatial connotations and to the use of the site's greenery.[14] It is therefore necessary to start a comprehension of the potentialities that cities may offer, with reference to their possible networking, understanding what are those characteristics of urban areas that accentuate or mitigate the effects of climate modification. The topic could be declined in relation to the potential offered by enhancing the indoor-outdoor functional relationship, for example, when necessary, also through a reconfiguration of the ground floors.[15]
3. Small-scale climate-proof interventions, based on the insertion of devices, street furniture or temporary structures, screens, shelters, floating pavilions, bike facilities, bus stops, interactive displays, lighting systems, etc. connected through the internet and capable of providing and exchanging information with urban users. These structures could be integrated with sensors capable of detecting in real time data on air temperature, relative humidity, presence of polluting agents and returning such information through specific interfaces or sending them through specific apps for smartphones. They could be part of a network of input-output processing of data, promoting the idea of a data-drive services ecosystem. In some experimental cases, these are real physical shelters that, on the one hand, can provide protection against climatic events, sandstorms, water and hail, or act actively in order to reduce extreme temperatures through air conditioning or nebulizing systems, and on the other hand they can provide a warning information system to access a range of emergency services.[16]

Finally, it is necessary to highlight how mobile devices and wearable technologies can represent a further step in increasing the resilience levels of individual citizens, in particular for the potential offered in a network system, if understood as a global collaboration system. Alert systems that use text messages and secure people in the event of tsunamis, have been in use for many years; ICT is also used as a connection network to send early warning systems (EWS) and to disseminate safety and emergency information. The implementation of this type of technology can be obtained through the use of geo-located smartphones, increasingly popular even in the remote areas of the planet: non only developing apps that create awareness but effective, active, interactive, connected tools. These systems can easily be integrated with an infinite series of wearable products that are already on the market: the ones that not only provide information related to the physiological data, but also weather and pollution information.

CONCLUSION

What is described highlights how the topic of adaptation can be declined at the various scales of the project, from planning to designing mobile and wearable devices. There is a wide spectrum of possibilities on which it will be necessary to focus research efforts, including the possibility of declining the topic through strategies that combine top-down measures coming from ordinary planning tools with others bottom up that refer to citizens' daily practices. New applicative and concrete possibilities emerge from the spread of information, the use of IoT, from real-time data sharing: individuals become smart citizens, fundamental actors for the network functioning in which they can become themselves agent of data collection and transmission.[17] In this sense, the actions of each individual citizen, when added to those of others, become strategic since they outline possibilities that originate from sharing and collaboration, and allow to achieve otherwise unattainable objectives.[18]

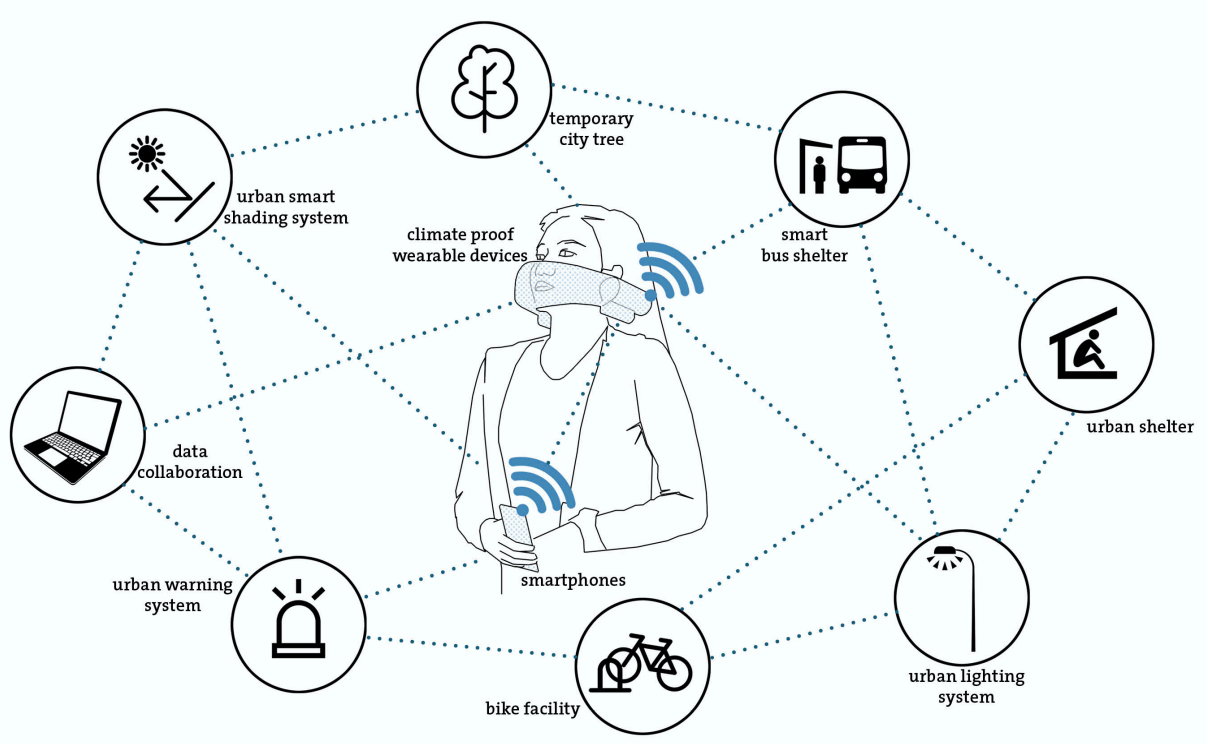

Figure 1. Implementation of geolocation technologies capable of collecting and transmitting data.

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TRANSFORMING LOST SPACE TO THIRD PLACE AS AN APPROACH OF URBAN REGENERATION: SPECIAL REFERENCE TO RANI AND DEBA DIGHI (WATERBODIES) OF CHITTAGONG

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INTRODUCTION: LOST SPACE SCENARIO OF A CITY….

Urbanization has been considered as one of the dominant elements behind the fast adoption to industrial revolution. This revolution in building sector boomed the overall city development pace and also gave birth to a new generation of city life and living pattern. Ultimately resulting to urban area shift the trade and commerce activities from all around the scattered countryside to the center. City gradually became the heart of all development and decision making. Cities attract rural migration for better life and wages that reshape the image of city. Like this, in densely populated setting like Chittagong, the commercial and largest port city in Bangladesh has improved steadily its ranks in the urban hierarchy. Centralized in the urbanized area and facing rapid economic growth has resulted in a lost or anti space of the city's fabric. Not only that but also unawareness role of people, inconsistent unplanned development is also key factor of creating these lost spaces. In 1943, Trancik defined Lost spaces in urban areas that need redevelopment to improve the local living environment.[1] But development approach in this city always concerns about residential (1st Place) and work (2nd Place) and recreation or public realm (3rd Place) is often oversighted that lead a deterioration of a city.

To keep pace in right direction with the growth of city, rethinking of a planning strategy, community involvement and social interaction in keeping with the transformation is very necessary. Lost spaces have the potentiality to become a third place if properly segregated with urban fabric. Like that, Chittagong city possesses several artificial lakes and ponds or dighi (water body) which are now following of lost space; of them two important historic ponds have been selected as a case study named Rani and Deba dighi (waterbody). Present condition of two waterbodies is engulfed with various problems around it and failed to attract city people due to proper integration and responsive environment, resulting in lost space in the city center, generating crime and degrading surrounding environment. For ultimate regeneration, it should incorporate social, economic and other urban aspect than individual build form. According to Roberts & Sykes, 2000, an urban regeneration strategy aims at sustainability of environment and making best use of the available resources.[2]

Given the above context, the present paper discusses issues related to study area located in city, focusing on their possible role to become third space for urban regeneration. Based on SWOT analysis

for assessing and identifying the key criteria of urban design strategy to propose an appropriate regeneration strategy. The study is done by exploring the case studies to succor understanding the criteria for urban regeneration strategy that could be used for residential and commercial area. An extensive field survey was done collecting data to portray the present situation.

RELATIVE TERMINOLOGY: CONCEPTS AND THEORIES

The literature review for this research is based on identify the meaning of two terms: Lost space and third place. And in further this chapter describes the related concepts of third place values.

Urban Lost Space

Urban lost spaces are generally defined by abandoned waterfronts, waterbody, frontage, coast and seashore where lost space is identified without any use or as leftover space. lost space requires to know how these spaces have evolved or originated. As Nefs suggest "The space may be vacant or a built areas or structure that has been abandoned or unused for public activity in urban area."[3] At first Trancik named lost space to describe the space that is needed to re-design, anti- space, making no positive contribution to the surrounding or users. The space is the base of high-rise tower or unused sunken plaza, parking lots, the edge of freeway, that nobody cares about maintaining, abandoned waterfront, train yards, vacant military sits, and industrial complex, deteriorated park and marginal public housing. (LoukaitoSider, 1996) described this kind of space as a crack space in city because they correspond to "in–between spaces, residual, underutilized and often deteriorating where abundant and deterioration have filled vacant space with trash and human waste.[4] But Franck and Steven portrayed this sort of space allows the spontaneous events and practices so people can relax, observe, buy or sell, protest and celebrate without permission.

Year Sommer	Author	Definition
1974	Sommer	Tight space, hard space
1986	Trancik	Lost space
1996	Loukaitou-sideris	Crack in the city
2000	Pagno & Bowman	Vacant land
2001	Hajer & Reijndrop	In between space
2002	Nielson	Superfluous landscape
2003	La Varrat	Post-it city
2005	Clemen	Indeterminate space
2007	Franck & Steven	Loose space

Table 1. An overview of under managed space (Girolamo,2013)[5]

Values of lost space

Many cities have specific policies for regenerating unused or lost space in planning and urban design. According to Nystrom 1997, the only effective urban development policy in years to come is renewal within existing urban fabric, and possibly also contraction. Most of the architects and planner says unused space provide different use and activities and have inspired many artist and planners. Christiaanse 2002, calls abundant industrial and railway sites, offer the unique condition of accessibility, being situated in central areas, but without the restrictions of the over regulated and gentrified centre itself. Vacant land provides opportunities by land transformation and the benefits by using lost spaces are following:

- Storm water absorption

- Air temperature regulation
- Wind speed mitigation
- Air purification (pollution absorption)
- Carbon absorption
- Flood control
- Green corridors between urban natural areas
- Recreation space
- Community garden space
- Social gathering space
- Temporary art installation space
- Crime reduction
- Noise reduction
- Neighbourhood beautification
- Increased adjacent property value
- Sense of place

Third Space

In 1991, Oldenburg coined the "third place" where people can gather, put aside the concerns of work and home and hang out simply for the pleasures of good company and lively conversation - are the heart of a community's social vitality and the grassroots of democracy.[6] Oldenburg (1991) argues that third places are important for civil society, democracy, civic engagement, and establishing feelings of a sense of place. He calls one's "first place" the home and those where one lives. The "second place" is the workplace, where people may actually spend most of their time.[6] Third places, then, are "anchors" of community life and facilitate broader, more creative interaction. The contribution of Trancik, 1943, Freidmann, 1987 and Oldenburg, 1991 summarizes that the combined effect of common interest, social interaction and cultural value can contribute to a great extent to achieve dynamic third place or public realm. Third places are usually locally owned, independent, small-scale establishments that are operated by people who seem to know everyone in the neighbourhood. In addition, third places are usually patronized by a group of regular customers who often transform them into their second homes.

Values of third place in urban design

Carmona, 2000 renders the main values of that places in urban design.[7] There have following major values of the third place.

- Character: A place with its own identity. Character in the townscape and landscape is ensured by responding to and reinforcing locally distinctive patterns of development, landscape and culture.
- Continuity and Enclosure: A place where public and private spaces are clearly distinguished. The continuity of street frontages and the enclosure of space by development define private and public areas.
- Public realm: A place with attractive and successful outdoor areas. The public spaces and routes that is attractive, safe, uncluttered and work effectively for all in society, including disabled and elderly people.
- Ease of Movement: Accessibility and local permeability by making places that connect with each other and are easy to move through, putting people before traffic and integrating land uses and transport.

- Legibility: A place that has a clear image and is easy to understand. Legibility is ensured by development that provides recognizable routes, intersections and landmarks to help people find their way around.
- Adaptability: A place that can change easily. Development that can respond to changing social, technological and economic conditions and context.
- Diversity: A place with variety and choice can be promoted through a mix of compatible developments and uses that work together to create viable places that respond to local needs.
- Social Learning: Interactive skills of Social Learning: a) Openness, b) Trust, c) Willingness to appreciate other points of view, d) Search for ways of accommodating all interests, e) Planners act as challenging intermediates between communities and powerful structures of the society. (Freidmann, 1987)[8]

In a nutshell, a responsive and dynamic urban design can be achieved by judicious development, appropriate conservation and ensuring public participation.

CASE STUDY ANALYSIS

Basic Information of Case study

Name	Ranir Dighi
Location	Enayet Bazar, Chittagong
Area	44346 sft. (1.02 acres) (150'x280')
Activities	Mixed-use
Condition	Renovated
Surroundings	Residential

Figure 1.1Rani dighi (waterbody) and surroundings
(source: https://www.flickr.com/photos/41050934@N02/4718171304/in/photostream/)

Name	Deba Dighi
Location	Agrabad , Chittagong
Area	609840sft (14 acres)
Activities	Mixed-use
Condition	Not Renovated
Surroundings	Commercial

Figure 1.2 Deba dighi (waterbody) and surroundings
(source: https://wikimapia.org/2631316/Agrabad-Pool)

Existing Scenario of Study Area: Strength and Weakness

Urban design objectives	Case study area	Strength	Weakness
Character	Rani dighi (water body) Deba dighi (water body)	Attractive Images and active area	Imposing and Illegal settlement failed to create distinct identity and image. Gated surroundings community created an image of barrier. (Fig 1.1 and 1.2)
Public realm	Rani dighi (water body) Deba dighi (water body)		No conscious existing public space engagement. Due to the lack of visual connectivity and back faced surrounding structures decrease the security and public accessibility. Lack of natural surveillance Combination of soft and hard pave Degraded local culture and values

Urban design objectives	Case study area	Strength	Weakness
Ease of Movement	Rani dighi (water body)	Central location ensures easy accessibility	Unidentified entrance and exit facilities. Inadequate public circulation because of illegal settlement.
	Deba dighi (water body)	City's main CBD location ensures easy accessibility. Linked with major urban street of the city. Major public building is situated within short distance.	
Continuity and Enclosure	Rani dighi (water body)		Difficult to distinguish public and private space around the both of ponds. Lack of place making
	Deba dighi (water body)		
Diversity & Density	Rani Dighi (water body)	Agenda supports dense development.	Mainly used for household and fishing. Limited access for recreational and social purpose.
	Deba Dighi (water body)		
Legibility	Rani dighi (water body)	Located at major cultural hub of the city where cultural event occurs at every week.	Dense surroundings amidst busy urban fabric. Routs
	Deba dighi (water body)	Located at city's CBD area which is the main commercial and economical hub of the city.	

Table 2. SW analysis of Rani and Deba dighi (waterbody), Chittagong
Source: (author)

RESPONSIVE URBAN REGENERATION PROPOSAL:

Before the proposal, the following table shows the three parts problem, vision and action which decides the evaluation criteria:

What to change?	Aim?	How?
Image	Public Realm	Responsive Public Space
Current Trend	Culture	Adapt Local Trend

Table 3. Problem, Vision and action

Evaluation criteria derived from the case studies have been grouped under two mains ie Public Realm and Adaptability for a responsive regeneration proposal.

Public Realm: Attributes that contributes towards developing public realm are following:

Accessibility and connectivity

Connect the main accessible point with the ponds and widening and increasing the access point to enhance public accessibility. Variety of options for vehicular and pedestrian are shown to encourage pedestrian friendly environment and discourage vehicular traffic and a bold pedestrian has developed public accessibility from major routes of the city (Fig 1.3. and Fig 1.4.). Visual and physical connections are made with repetitions of space connected routes.

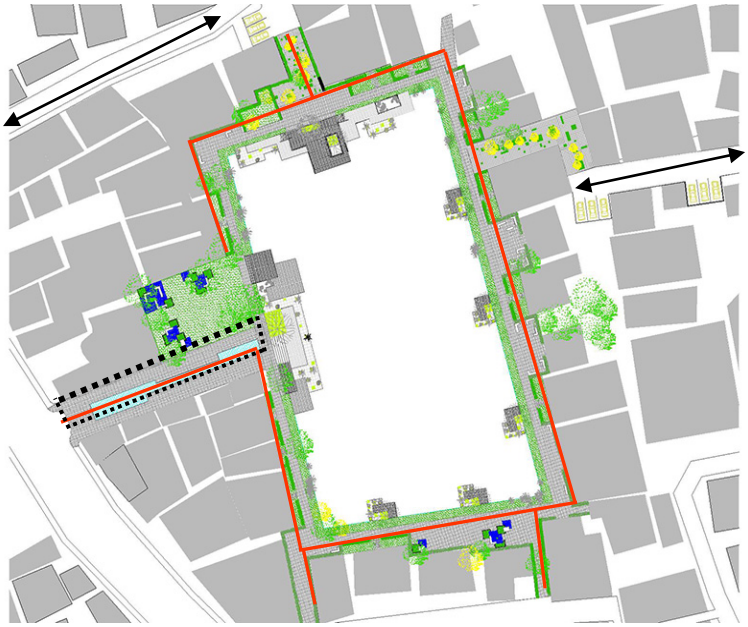

Figure 1.3 Rani dighi (waterbody); red color indicates proposed pedestrian pathway and double line arrow proposed vehicular access and parking lot. (source: author)

Figure 1.4 Deba dighi (waterbody); red color indicates proposed pedestrian pathway and double line arrow proposed vehicular access and parking lot. (source: author)

Legibility

For place identity and clear image, different types of proposals can be followed for attract people easily and find their way around:

Case study 1: A secondary water channel can be introduced as a part of continuity of pond for easily recognizable place or sense of place (Black dash line Fig 1.3).

Case study 2: A pedestrian based main entrance with landscaping and plaza can be proposed. (Black dash line Fig 1.4).

Comfort (Daylight, wind & temperature)

Daylight and the overcast shadow of the existing structures have been approached to find out shadow pattern and thermal analysis to assess suitable pavement pattern. Creating sun traps and channeling or filtering the wind thorough appropriate position of building, plants and different shading devices.

Adaptability: Attributes that contribute towards developing adaptability are: Value culture; respect current trend; Engage community which is given below:

Culture

Local community responding to the culture and tradition; presence of internal courtyards, front door spaces, retail shops are shows inherent respect to culture. Local culture understood by ordinary behavior of the local residents from their daily life activities as for example, bathing, fishing etc. Traditional rural community built up around a common issue as for example water body which is essential for all. Settlements in rural areas of Bangladesh built along the river, or around water body for this reason. Water means a lot to the culture here. From daily life activities to rituals, agriculture to social & religious activities, water is vastly used.

Other Criteria

Around the waterbodies and walkway, by designing some seating arrangement, the total appeal of the space can be improved. Especially in the period of different festival time, these help to reduce the pedestrian load on the main street and make the whole space more interesting.

There are residences of some lower income groups. It is very important to consider them in the design. They can be easily involved to the development of the site. There is an opportunity to develop retail businesses.

Designing fishing deck around the water body to introduced fishing activity for amusement would help to build up a community interaction. The money coming from this business can be involved in the development of the community. Improve water quality of the waterbody, to engage the community people for water collection. Thus, the interaction between people can be improved and community participation can be improved to protect the water and the environment.

There is some heritage structure which can be considered under the policy of adaptive reuse. Restaurant and club house can be introduced in this structure. So, it could help to rejuvenate the place.

In 1968 from the perspective of Natural Surveillance by Angel can be ensured by urban design. Street design emphasized on pedestrian rather than on vehicular traffic, landscape design also provide surveillance, especially in proximity to designated points of entry.

Community participation is very important for every successful regeneration strategy. In case of regeneration, involvement of public is very crucial. That will help to maintain the safety and better environmental condition. If community becomes aware of the total prospect of the site, they must be tried to develop and protect it.

DISCUSSION AND CONCLUSION

Ray Oldenburg quoted at length ″In order for the city and its neighborhoods to offer the rich and varied association that is their promise and potential, there must be neutral ground upon which people may gather. There must be places where individuals may come and go as they please, in which no one is required to play host, and in which we all feel at home and comfortable.[6]

In today's cities, rampant expansion and new development are brutally transforming the urban tissue where the significance of urban lost space is diminishing day by day. For this situation, regeneration is concerned not only with short term goal like amusement type but also to attain a long-term goal about which urbane people can survive within. In the process of regeneration, this paper has discussed third place as one of the approaches which is used for improving lost open space. The case study initiates with the attempt to sort out the accurate problems and use regeneration as urban design intervention process. Regeneration of Rani and Deba (waterbodies) is not simply an urban design project but stands strategically against current trends of encroachment without holistic consideration of the interest of all. Respecting local tradition through internal courtyard and front doorstep around water bodies: work as common interest for the community. Because cultural values can act as motivational forces to encourage community amalgamation and social continuity. Besides forming physical connection to the site, cultural values reflected within modern forms are important in making these urban spaces to fit into the context. In conclusion, it is crystal-clear that third place is a setting over home and work where people can often relax in good company or in a regular basis. The location of two case studies need to change its mono function images and the lost spaces lying underneath have potentiality to get it with. Regaining the lost spaces of two case studies and transform those into third place can regenerate the urban life and living. Obviously, the case study place should integrate with surrounding urban fabrics not as an individual piece of land that would welcome city people and connect with them. This exercise shows that culture could inspire the urban design process.

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[DE]MOUNTABLE CITIES FOR A TRANSIENT [URBAN] DOMESTICITY

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A HYBRID MULTIFUNCTIONALITY

A city today is considered a networking system that deals not only with the built environment but with the physical social interaction and its continuous exchange of virtual information. It is not just a system conformed by the connection of buildings, infrastructure and public spaces, but also by the underlying unstructured reactions that occur in response to the rigid urban system. The temporary and dynamic occupancy of the city, that emerges from the continuous physical and virtual transformations, challenges its spatiotemporal parameters and creates a complex and morphing relationship. In this urban context, the concept of domesticity has been redefined in the last couple of years based on a hybrid multifunctionality, which has emerged as a consequence of cultural changes due to various advents in technology. These new emergent technologies and systems, from physical to virtual infrastructures such as wireless internet and electricity, challenge basic living rituals and traditional notions of how we conceive and build the domestic space. It is now a hybridised and shared space that responds to an ever-evolving urban framework.

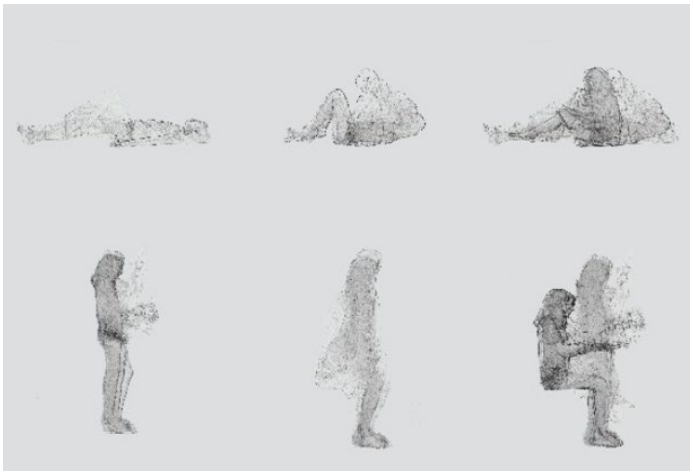

Figure 1. Hybridized Domestic Rituals.

Learning from Pop-Up

With the massive exchange of information that keeps expanding the global interconnectivity, and the improvement of transport, communications and construction systems, the rapid rising of new cities has

proliferated and the idea of living permanently in a home has been displaced by a more nomadic urban dwelling. If domesticity was conceived in the twentieth century as private and permanent, today it has become public, shared and temporary, challenging the spatiotemporal parameters for living since they are now based on satisfying the needs of an increasingly transient population.

The tendency to an urban transiency has been reflected in the immediacy of the booming pop-up economy of retail, social media, e-commerce, co-working spaces and the domestic environment through services such as Airbnb. If pop culture was about mass communication related to text, signs and landscape-, then pop-up culture is about consumerism and mass communication related to technology, social interaction and [de]mountable infrastructure.

Even though this constant popping up of buildings and cities offer new experiences, living opportunities and more spaces, the housing crisis is still rising, and the number of homeless people keeps increasing. This complex redefinition of urban living space reveals not a housing shortage but a more pressing issue on affordability. Housing is no longer seen as a basic social need, but instead, it has become an instrument of profit-making that transforms cities into sites of intense displacement and inequality, exploitation and poverty. If we are to keep creating new cities, what can we learn then from this rising pop-up culture to rethink and take advantage of the flexibility it can offer? If the urban user is transient and dynamic, shouldn't the urban [infra]structure be temporary and flexible? Should domestic urban architecture be [de]mountable?

A TRANSIENT URBAN DOMESTICITY

In an urban context, the new domesticity is based on a transiency originated in the constant pursuit to detach from the fixed infrastructure and distribution systems. Cities have always been built around natural resources and sources of power through permanent structures that provide basic services for living. With new technology relying on renewable energy and wireless systems, the concept of a more flexible infrastructure that provides the basic services has made possible this detachment from the fixed and permanent allowing a more nomadic existence.

Figure 2. Plumbing and Electrical Domestic Systems Diagram.

Supersurface Grid

In 1972, the Supersurface[2] envisioned a global network of energy that provided points of connection to plug-in, showing a new way of life in a post-architectural nomadic existence that would eventually allow living anywhere. In recent years, the Super Grid project[3], an interconnected electric network

powered by renewable energy, intends to eliminate the necessity of immediate proximity to a source of power by distributing it over huge distances all around the globe, finally reaching the flexibility and interconnectivity that allows to live anywhere.

Belong Live Anywhere

While the Super Grid seeks to provide energy through a shared global network, Airbnb functions as another global system that provides more dynamic living accommodations through a shared network that uses the existing urban infrastructure. The images of houses, flats, and bedrooms all around the world can be accessed through their platform as a kind of social media for housing, where the domestic has been made public through its virtual accessibility, and temporal through its short-term nature. Now, it is possible to, as the Airbnb slogan claims, "Belong Anywhere".[4]

Short-term rental platforms like Airbnb, as well as long-term like StreetEasy, have led to a re-adaptation of the interior domestic spaces to become more flexible, multifunctional and profitable to meet the needs of a diverse and transient user—from living rooms converted into bedrooms or shared spaces for kitchens and bathrooms to demountable and flexible furniture that represent the pop-up interior architecture culture. Companies like IKEA, with improved technology in building materials and fabrication systems, provide more economical, assemblable and multifunctional furniture, aiming for a domestic interior that satisfies the modern rituals offered in an increasingly dense city.

If services like Airbnb and IKEA build up a public and universal domestic interior through internet access, the public wireless internet creates an exterior domesticity as another network of infrastructure. The Wifi Hotspots, such as LinkNYC, provide not only free and public access to the internet but also plug-in electric connectivity, advertising and a security system. Through these services, they become nodes for domestic settlements in non-domestic public spaces leaving traces of dwelling in the city and creating shared living spaces on the streets.

As these hotspots become a new services network at a city scale, the system is also expanded to a global scale. As the Super Grid provides energy globally, Starlink[5] offers worldwide internet through low orbit satellites, becoming a part of the new domestic urban infrastructure and a new parameter for living anywhere. The new transient urban domesticity emerges as a result of the flexibility that these physical and virtual systems can provide, creating a more interconnected world.

[DE]MOUNTABLE CITIES

As the new public domesticity embodied in pop-up cities emerges from the possibility of connecting the world physically and virtually through flexible structures, the concept of a [de]mountable city has been represented in different social contexts. Thus, the duality between the present and the future, and the existing and the new, is questioned through the temporal and the permanent city.

The Spectacle City

World Fairs, as a kind of pop-up future cities, are demountable temporary structures—cities built within cities—that started from the same idea of connecting the world by exhibiting achievements and progress from other cultures in terms of science, technology, art and design.

The 1939 New York World Fair was built on a wetland in Queens, a site that would later be transformed for the 1964 World Fair through marvelous demountable structures that celebrated a unified world entering the new space age. Simultaneously, New York City was being re-erected with an urban renewal plan that included the construction of new highways throughout Manhattan, a transformation for a more structured and homogenous modern city. Numerous tenement buildings were demolished and a massive slum clearance displaced thousands of residents to inhabit new low-

income projects on the outskirts of Manhattan, places that would later be filled with violence and crime.

In a more recent event, the Expo Milano 2015[6] proposed a master plan with tent-like canopies for each pavilion, public spaces, roads, as well as a network of water canals and surrounding farmlands for agriculture, with the idea that once the fair was over, the land would be left with all the necessary services and infrastructure to develop a new city. The city was demounted once the fair ended and then abandoned with all the built infrastructures.

World exhibitions, as temporary spectacle cities, have always been about celebrating achievements, progress and advents in technology as a window to a brighter future. Complete cities are assembled and while they are built to be temporary, they end up becoming permanent and profitable spectacles of what life is expected to be instead of what life is really like.

This year's Dubai 2020 World Expo, the new 'smart city of the future', will be located between Dubai and Abu Dhabi and it will show global innovations in subjects like sustainability, mobility and new opportunities. At the same time, Abu Dhabi's Masdar City is to be finished in 2030 and already is completely abandoned—described more as a green-lab rather than a place to live.

The Non-City

In the current context, [de]mountable cities such as tent cities for refugees and other informal settlements are also located in between cities and made out of structures that are meant to be temporal but end up becoming permanent. Not established as 'real cities' due to their temporal state, these settlements are non-places[7] or places of transition that become permanent dwellings. Without the proper and efficient infrastructure to provide the basic living services, these 'cities' are built with non-lasting materials usually used for emergency shelters.

The [Socially] Produced City

As we finally have the infrastructure to keep popping-up new and improved cities anywhere, even planning cities in Mars,[8] these brand-new cities are being abandoned and the existing cities continue to deal with the same housing deficiencies. If cities are not just spaces produced by their infrastructure, but also by the physical and virtual social interactions, the city becomes a socially produced space[9], constantly changing and redefining the flexibility and dynamism of existing structured living spaces. How then does an ephemeral understanding of a city's occupancy can provide insight on how to deal with the existing permanent infrastructure so it can respond to a transient [urban] domesticity?

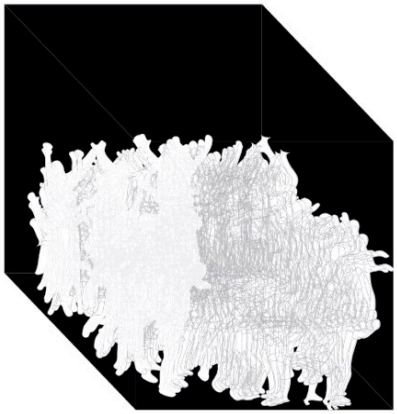

Figure 3. Social Body, Social Space

[DE]MOUNTABLE [INFRA]STRUCTURE

The [de]mountable [infra]structure in cities, such as scaffolds and public WiFi, constantly transforms the physical environment creating a consistent but morphing condition. By merging with the permanent structure, it creates transitional and alternative inhabited spaces that work as links between the rigid city and the social dynamism of the physical and virtual interactions.

As technology impacts cultural changes that demand new dynamic alternative spaces, the virtual exchange of information also blurs the physical limits determined by architecture. The wall, which is the main element that conventionally encloses the private from the public space and delimitates the domestic space, can now be virtually transgressed through our devices such as computers, phones, security cameras, and smart televisions. It creates a hybridised space that is no longer just private but also public, no longer individual but collective.

An [Un]inhabitable Shared Space

Under this concept of a shared virtual domesticity, the physical domestic space has also been transformed to accommodate a shared inhabitation. With the housing crisis and the lack of affordable spaces, the house is no longer seen necessarily as an individual unit but more as a collective space. Since most living spaces are designed for the individual or the conventional family unit, the interior spaces are self-transformed to provide more affordable liveable spaces that sometimes breach the limits of legality and habitability.

The coffin apartments in cities like Hong Kong[10] reflect the affordable housing crisis through the transformation of the interior domestic space. Demountable walls and structures temporarily alter the spaces and redefine their function, like storage areas converted into bedrooms, turning uninhabitable spaces into liveable and collective spaces.

The collective dwelling is manifested also at a city scale through squatting as a shared network of housing in the existing abandoned buildings. The squatted spaces, although illegal, usually work as autonomous entities that understand the role of community in a domestic shared space. If cities like San Francisco have approximately three empty houses for every two people[11], and the great percentage of the available housing in cities like London are empty and used as investment properties, the squatting is a way of claiming the existing infrastructure as shelter. Even though the urban squatting has occurred for centuries in thousands of abandoned properties all around the world, it has now been

facilitated by the public domesticity exposed in platforms like Airbnb, which has allowed guests to become squatters once the renting periods are over by taking advantage of the legal policies for claiming a property. Squatted spaces can then be defined as sites of liberation and at the same time places of conflict embodied in this dynamic network that redefines housing as a temporal and demountable infrastructure.

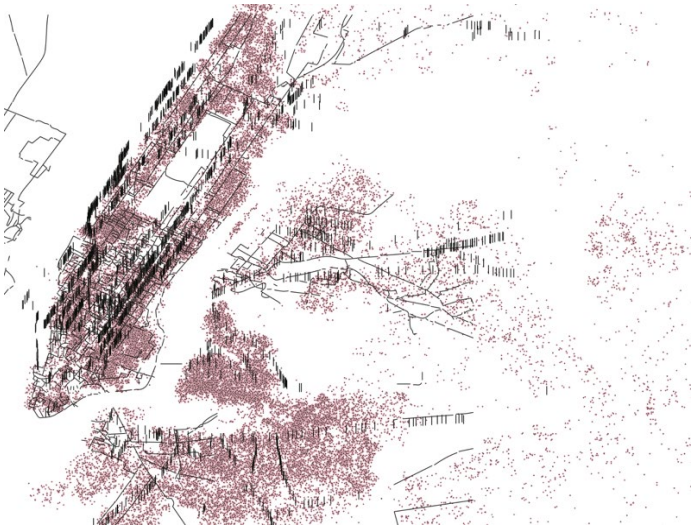

Figure 4. Link NYC Hotspots and Airbnb Locations.

A POP-UP CITY SYSTEM

As we build more and at the same time try to preserve more, cities are filled with temporary demountable structures that migrate from one lot to the other. Scaffolds—another dynamic network—create a permanent condition that interlaces with other networks in the public space despite their temporal nature. These demountable structures serve as urban shelter and become new inhabited spaces where interior domesticity leaks out to non-domestic public spaces, leaving traces of dwelling all over the city and reshaping the public urban architecture. The same way the residual spaces in cities are used for commercial purposes and pop-up events and stores, in current events, inflatable hospitals as emergency architecture have transformed the public and residual spaces into temporal spaces for public infrastructure. In this context, the existing infrastructure and the temporal infrastructure work together as a hybrid to provide basic services during an uncertain and evolving social condition, allowing more flexibility and renegotiating public spaces while dealing with a crisis. These demountable [infra]structures in contrast with the fixed [infra]structures reveal once again the duality between permanent and temporal, public and private, and legal and illegal. In this urban context, the permanent is usually linked to the structured and legal and the temporal to the informal and illegal.

As these ephemeral conditions relate more to how social interactions and virtual flows work, then maybe flexible and pop-up structures can be understood as a system of thought that integrates the cultural essence of a metropolis. If the technology to detach from the permanent infrastructure now exists, and the city becomes an organic system that works collectively instead of individually, these dynamic demountable structures along with the massive flows of information gathered in cities can help provide the freedom to renegotiate existing spaces and public policies, thus learning from pop-up in an ever evolving [urban] domesticity.

NOTES

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A COMPUTATIONAL APPROACH TO PRIVACY MEASURING ON THE IMPACTS OF EMPLOYEE: INTERACTIONS IN OPEN-PLAN OFFICES

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INTRODUCTION

The design of cost-efficient workspaces has become significantly important in the 21st century. Organizations aim to reduce rental costs and fit their employees into smaller spaces because of financial issues.[1] As a result of the idea of companies to reduce land costs, open-plan offices where employees occupy less square meters with the elimination of interior walls are introduced into workplace design.[2] Open-plan offices provide integrated workspaces that enable employees to interact and communicate with their colleagues.[3] On the other hand, these integrated spaces result in the invasion of acoustical and visual privacy in open-plan offices that even outweigh the main positive effect of these offices as interaction. The possible effect of visual and acoustical privacy on employee interactions is still an uncertain issue in open-plan offices, thus, this study aims to fill this gap through a computational approach.

Open-Plan Offices

The main logic of the open-plan office is to create workspaces that are divided by furniture or partitions instead of walls.[4] The main objectives of this type of office are equal participation of each employee in work activities and increased communication.[5] The introduction of integrated workspaces into office design brought both advantages and disadvantages to the environmental perceptions of the employees. Integrated workspaces in open-plan offices have some positive effects on employees such as communication and interaction (Table 1). On the other hand, uncertain divisions in open-plan offices result in some problems related to privacy and even dominate the interaction and collaboration advantages of open-plan offices (Table 2).

Privacy in Open-plan Offices

According to Altman[6], "privacy is selective control of access to the self or to one's group". Therefore, people aim to keep social contact with others at an optimum level. Moreover, social contact should be maintained by occupants in order to prevent negative environmental perceptions of them since social contact less than the optimum level could result in isolation.[7]

There are two types of privacy: architectural privacy and psychological privacy. Architectural privacy means visual and acoustical isolation. For instance, traditional offices that have workplaces divided

with walls have a high degree of architectural privacy while an open-plan office that workplaces are divided by partitions or furniture have less privacy.

Advantages of Open-plan Offices	**Studies (Author Surname, Date)**
Communication, Interaction	Kupritz, 2003; Allen & Gerstberger, 1973; Kim & de Dear, 2013; Sundstrom, 1986
Collaboration, Team-work Opportunities	Ding, 2008; Fayard &Weeks, 2007; Allen & Henn, 2007
Knowledge sharing	Boutellier et al., 2008
Flexibility, Cost-saving	Brunia et al., 2016; Yıldırım et al., 2019; Hedge, 1982; Pejtersen et al., 2006; Brennan et al., 2002; McElroy & Morrow, 2010
Creativity	D'Angelo Fisher, 2013
Increased cognitive task performance	Bridger & Brasher, 2011

Table 1. Advantages of Open-plan Offices (Source: Authors, 2019)

Disadvantages of Open-plan Offices	**Studies (Author Surname, Date)**
Lack of visual/acoustical privacy, high distraction/noise	**Hedge, 1982; Block; & Stokes, 1989; Cangelosi & Lemoine, 1988**
Uncertainty about the possession of space	**Kimmons & Austin, 2012; Danielsson et al., 2015; Altman, 1975; Brown, 2009**
Cognitive workload	**De Croon et al., 2005**
Dissatisfaction with workspaces	**Kim & de Dear, 2013**
Decrease in work performance, psychological and physical well-being	**Haapakangas et al., 2018; Danielsson & Bodin, 2008**
Reduction of motivation and productivity	**Brennan, Chugh, & Kline, 2002**

Table 2. Disadvantages of Open-plan Offices (Source: Authors, 2019)

On the other hand, psychological privacy occurs as a result of feeling control of access to the self or to one's group.[8] Architectural privacy could affect psychological privacy. For example, employees who work in enclosed workspaces have more control over social contact with others while employees in open-plan offices have limited chances to control their accessibility.[9]

Architectural Privacy in Open-plan Offices

Architectural privacy is divided into two: visual and acoustical privacy. Visual privacy is an accidental effect of the presence of others or the activities of others while acoustical privacy is the ability to hold private conversations without neighbors hearing.[10]

Visual Privacy

Invasion of visual privacy in open-plan offices affects employees negatively in terms of loss of control, satisfaction and productivity. According to Brand and Smith,[10] when the degree of closure decreases in open offices, employees are exposed to unwanted observation (loss of visual privacy) and they lose personal control over their workspace. In order to examine the effects of perceived privacy on employee satisfaction and performance in open-plan offices, Maher and von Hippel[10] also conducted a study that supports the findings of Brand and Smith.[11] They discovered that low perceived privacy affects the satisfaction and performance of employees negatively.[12] As a result, employees have developed negative feelings towards their workspace because of social contact that they cannot control.[10]

Acoustical Privacy

Acoustical privacy is defined as incapability to hear conversations.[10] Loss of acoustical privacy affects employees negatively in open-plan offices because employees are exposed to unwanted sound when the degree of closure decreases in open-plan offices.[10] A recent study explained that more than 40% of survey participants stated that their offices are very noisy or noisy because of background noise in their work environment.[10] Therefore, according to Lee and Jeon[10], providing sufficient speech privacy is the most important acoustical design concern in open-plan offices in order to create a work environment without noise from neighboring workspaces.

According to studies mentioned previously, lack of visual and acoustical privacy overshadows the most important advantage of open-plan offices (interaction).[11] Therefore, understanding what interaction means in work environments becomes necessary.

Interaction in Open-plan Offices

Spreading ideas in work environments is a social process that needs individual employees to come together and be involved to transfer their ideas.[10] Therefore, in order to perform work tasks and exchange ideas, employees need to interact with their colleagues in offices.[10]

Increased interaction among employees brings some advantages to work processes. When employees collaborate and help their colleagues, increased interaction among them results in more effective and valuable employees.[10] Therefore, more effective employees mean an increase in the overall effectiveness of teams and work units.[10]

There are two main interaction types in offices: social interactions that occur as a result of personal choices and work-process interactions, which are more obligatory. Within these interaction types, work-process interaction is the subject of this study.

As mentioned previously, open-plan offices occurred as a result of the interaction ideas in workspaces.[10] On the other hand, lack of visual and acoustical privacy is the main drawback of open-plan offices. Therefore, this study aims to investigate the possible effects of visual and acoustical privacy on work-process interaction in offices.

A METHODOLOGICAL REVIEW

In order to discover privacy issues in open-plan offices, previous studies are analyzed methodologically (Table 3).

Methodologies	Instruments	Studies (Author, Surname, Date)
Qualitative Research	Systematic review process	Meinel et al., 2017
Quantitative Research	Occupant survey questionnaire	Kim & Dear, 2013
Quantitative Research	Survey questionnaire, measurements of the office characteristics	Laurence et al., 2013
Quantitative Research	Survey questionnaire	Bergstörm et al., 2015
Quantitative Research	Survey questionnaire	Haapakangas et al., 2018
Mixed Methods Research	Post-occupancy survey questionnaire and interviews	Parkin et al., 2011
Mixed Methods Research	Survey questionnaire, work@task	Blok et al., 2012
Mixed Methods Research	Interviews, personal observations, pre- and post-occupancy survey questionnaire, document analysis	Brunia et al., 2016

Table 3. Previous methodologies and instruments related to privacy in open-plan offices (Source: Authors, 2019)

Previous office studies used qualitative research, quantitative research and mixed methods research. Although they use different methodologies, as an instrument, most of the previous office studies used questionnaires that obtain general information about open-plan offices. However, even in the same open-plan office, there are different responses because of different locations of workstations resulted in different privacy. In order to understand the reason for changes in responses, a detailed analysis of open office space is required. There are numerous open-plan office studies focusing on visual and acoustical privacy that use conventional methods, however, a study that applies the computational approach to both visual and acoustical privacy is scarce. In order to fill this gap, this study uses mixed methods research techniques through space syntax methodology.

Space Syntax Methodology

Space syntax theory was developed by Hillier and Hanson at the University College London (UCL) in the late 1970s to early 1980s as a tool to help urban planners. Space syntax is a methodology to analyze spatial configurations. It rates spaces in an architectural plan with values by indicating social activity.[10] The space syntax methodology describes the relation between spatial layout and the user's behavior.[10] Moreover, spatial configurations describe several social patterns.[10] These configurations are analyzed through various software simulations.

Visibility Analysis

Visual privacy has a negative relationship with visibility since an increase in visibility results in poor visual privacy. Therefore, physical invisibility is required for visual privacy.[10] Visibility is divided into two: generic and targeted visibility. Generic visibility deals with all parts of a space that are visible from each location in a setting. In contrast, for targeted visibility, specific visual targets are defined and examined to decide which visual targets are visible from each location in a setting.[10]

Generic Visibility Analysis

Generic visibility deals with all parts of a space that are visible from each location in a setting.[10] UCL DepthMap software is used to analyze generic visibility. UCL DepthMap is a specialized space syntax

software that identifies and evaluates spaces in order to understand social processes in the built environment.[10] It provides spatial analyses through integration and visibility calculations by placing thousands of isovists that represent a volume of space visible from a particular standpoint in space.[10] As seen in Figure 1, isovists indicate visible areas from a particular point.[10] The topological analysis of given spaces is achieved through the juxtaposition of isovist graphs (Figure 1).

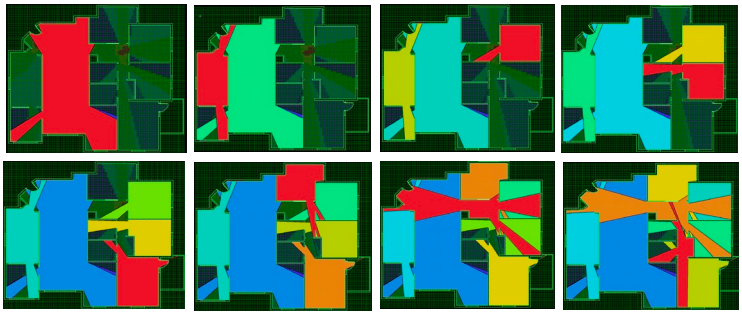

Figure 1. The juxtaposition of isovist graphs, DepthMap software (Source: Authors, 2019)

Targeted Visibility Analysis

In addition to generic visibility analysis, some studies mentioned that the visibility of specific targets and objects in buildings affects different types of behavior and cognitive processes.[10] Peponis et al.[10] stated that the visibility of art pieces in museums has an influence on the movement and experience of visitors. Likewise, the visibility of other employees moving around resulted in interactions at work.[10] These studies mentioned previously focuses on some objects or visual targets which are more important than other objects in a building. Therefore, targeted visibility analysis is necessary for the visibility of specific targets.

Visibility depends on the probability of seeing other occupants, visibility affordance, and how people move inside of a building.[10] Thus, in addition to generic analysis, the visibility analysis should also focus on special targets that are more important than other environmental properties for occupants of a building.[10]

Research Gaps of Previous Studies

Although progress in the methodology of visibility graphs analysis, previous studies have three main limitations. First, most visual privacy studies focus on only generic visibility analysis not the visibility of specific visual targets. Second, few studies which emphasize on targeted visibility analysis mostly deal with hospitals and museums. Targeted visibility analysis of work environments is scarce. Third, privacy studies mostly concentrate on visual and acoustical privacy separately. A study that combines both visual and acoustical privacy and uses a computational approach to analyze both visual and acoustical privacy is missing. Thus, this study aims to address these gaps mentioned above.

METHODOLOGY

This study aims to demonstrate the applicability of visibility analysis to the behavioral impact of spatial properties. Numerous studies are focusing on generic visibility. However, a study that draws a distinction between generic visibility and targeted visibility is scarce. Another aim of this study is to fill this gap. Therefore, through generic visibility, targeted visibility and acoustical analysis, the study aims to investigate the possible effects of visual and acoustical privacy on employee interaction in offices. Following these visibility analyses, the study aims to provide design solutions for open-plan offices in terms of employee interaction, visual and acoustical privacy.

Research Questions

In order to consolidate, the research is developed to answer the following questions:

1. What is the distinction between generic and targeted visibility for open-plan offices?
2. How do visual and acoustical privacy affect work-process interactions in open-plan offices?
3. What are alternative design guidelines for open-plan offices in terms of privacy and work-process interactions?

Hypotheses

H1: While generic visibility analysis gives a general idea about the visual privacy level of a specific area in an open-plan office, targeted visibility analysis provides more precise results of the same area in terms of occupant behavior and preferences.

H2a: When visual privacy increases in open-plan offices, the amount of work-process interaction reduces.

H2b: When acoustical privacy increases in open-plan offices, the amount of work-process interaction reduces.

H3a: Spatial planning guidelines that increase privacy in open-plan offices could be offered through computational analysis.

H3b: Spatial planning guidelines that increase work-process interaction in open-plan offices could be offered through computational analysis.

Proposed Framework

In order to investigate research questions, the study uses both qualitative and quantitative research methodology as seen in Figure 2.

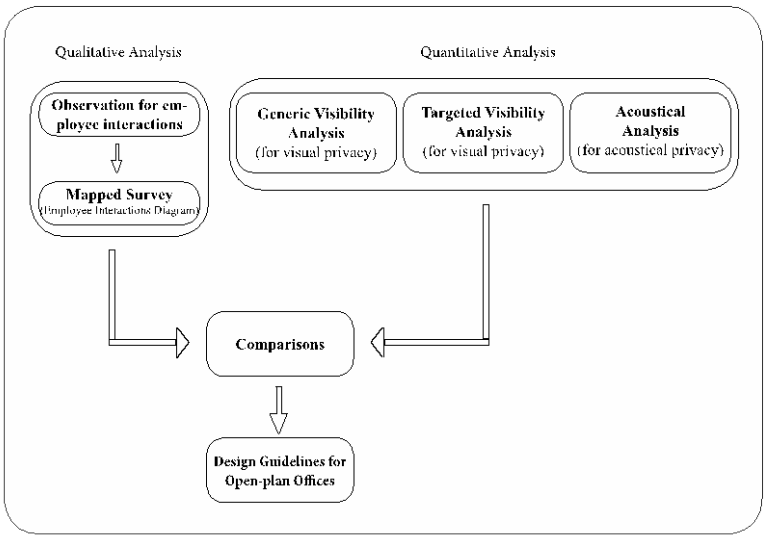

Figure 2. Proposed Framework (Source: Authors, 2020)

Participants and Setting

Participants of the study are designers in architectural offices because the study needs an occupation that requires both concentration and collaboration in order to evaluate visual privacy, acoustical privacy and interaction in open-plan offices. Participants vary demographically. The study aims to get responses from both female and male participants in different age groups.

Data Collection

Data is collected both qualitatively and quantitatively. Qualitative data collection includes observation and mapped survey while quantitative data collection includes generic visibility analysis, targeted visibility analysis and acoustical analysis.

Qualitative Data Collection

The qualitative data collection process starts with observation of the selected open-plan office in order to detect interaction patterns in the work environment. Before the observation procedure, observation paths are defined by using floor plans of the selected open-plan office. In addition, observation paths are determined while employees are not in the office in order to prevent cognitive biases. After observation preparation, the observer records interaction (location/activity) while walking through the open-plan office through a pre-defined path. This observation is repeated three times in a week to obtain more confident results.

Following the observation process, a mapped survey is used as an instrument for the second part of the qualitative data collection. Floor plans of the selected office and instructions to it are distributed to employees in the office. Workplaces of employees are marked with a green dot. They are asked to mark the work process interaction with a red circle.

Quantitative Data Collection

Quantitative data is gathered through generic visibility analysis, targeted visibility analysis and acoustical analysis.

Generic Visibility Analysis

Quantitative data collection starts with generic visibility analysis. DepthMap software is used as an instrument for this part of the methodology. Connectivity, visual integration and step depth levels of the open-plan office are indicated by DepthMap software in order to compare interactions and visual privacy levels in the open-plan office. The visual integration tool is used to determine visual privacy levels. As a result of general visibility analysis, maps of the color spectrum that represent visual integration (visual privacy) in the open-plan office are obtained for comparisons and relationships part of the methodology.

In Figure 3, a pilot study is conducted by authors in order to analyze general visibility in an open-plan office by using DepthMap software. The map shows the visual integration levels of the open-plan office. Red zones indicate the most visible spaces while blue zones indicate less visible spaces. As a result of the pilot study, workspaces in an open-plan office are ranked according to their visual integration levels.

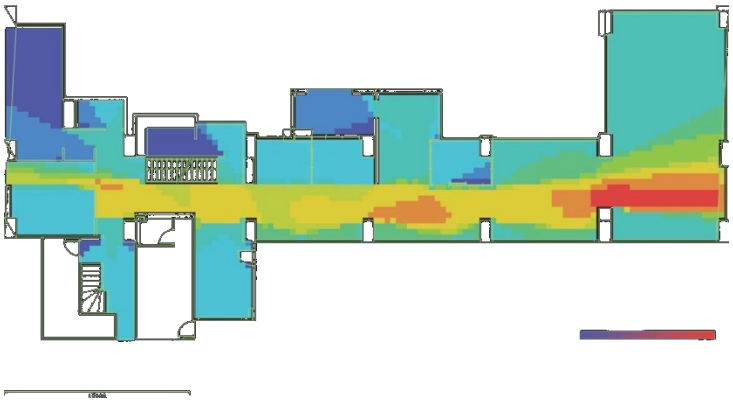

Figure 3. General visibility analysis (visual integration tool) of the open-plan office by DepthMap
(Source: Authors, 2018)

Targeted Visibility Analysis

Following generic visibility analysis, targeted visibility analysis is conducted in order to examine which visual targets are visible from each workplace in the open-plan office. DepthMap software is used in order to this analysis. However, DepthMap software can only analyze generic visibility and targeted visibility is not available in the software. A new script written in Python for DepthMap software is developed by using isovists, visible areas from a particular point. In order to analyze targeted visibility, the definition of specific targets is necessary. In this study, specific targets are other employees moving around. Then, which employees are visible from each workplace in the open-plan office is decided. Therefore, for each workplace in the open-plan office, isovist analysis is carried out individually and visible areas for each workplace are defined. The total number of grids in the specified isovist area is calculated. The default grid size can be used to begin with, or a smaller grid size can also be set. Then, the number of employees that are visible for the defined isovist area is determined through agent analysis in DepthMap software. For agent analysis, virtual people are released into space in order to make decisions where to move. These virtual people represent other employees who move around. Targeted visibility analysis is calculated by the ratio of a number of visible employees in the isovist area to the number of grids in that area. As a result of targeted visibility analysis, targeted visibility ratio of each workplace and maps of the color spectrum that represent visual integration (visual privacy) individually for each workplace in the open-plan office are obtained for comparisons and relationships part of the methodology.

As seen in Figure 4, the proposed targeted visibility analysis method is demonstrated.

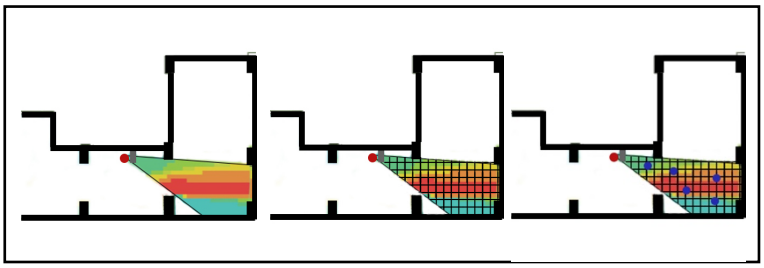

Figure 4. Proposed targeted visibility analysis of a workplace by DepthMap (Source: Authors, 2020)

Acoustical Analysis

The last step of quantitative data collection is acoustical analysis. ODEON room acoustics simulation and measuring software is used as an instrument for this final step of the data collection. The open-plan office is categorized as acoustically private or non-private based on the ISO 3382, a standard for speech privacy quality measurement in open-plan offices. After the sound source and receivers are replaced in ODEON; spatial distribution of Speech Transmission Index (STI), distraction distance (r_D) and speech privacy distance (r_P) are calculated in order to evaluate the acoustical condition of the open-plan office. Privacy distance is the distance from the speaker where STI falls below 0,20. Concentration and acoustical privacy in the open-plan office increase above the privacy distance. Moreover, distraction distance is the distance from the sound source where STI falls below 0,50. Above distraction distance, concentration and privacy start to improve. As a result of the acoustical analysis, color maps that represent acoustical privacy in the open-plan office are obtained for the data analysis part of the study as shown in Figure 5.

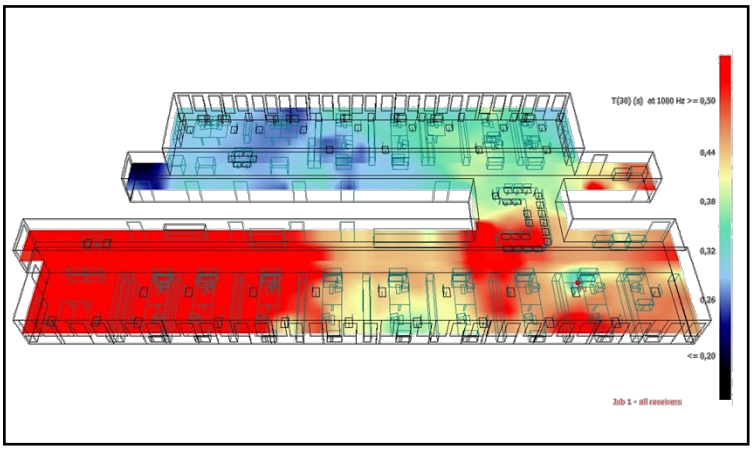

Figure 5. Acoustical analysis of the open-plan office (Source: retrieved from https://odeon.dk/product/features/, December 2019)

Data Analysis

Data is analyzed both qualitatively and quantitatively after data is collected.

Qualitative Data Analysis

For the first part of the qualitative analysis, the observation process, employee interaction (the answer is yes/no), location (number of workstations) and identity (architect/interior designer/manager) are recorded. Then, tables that show frequencies of answers are obtained in order to support the results of the mapped survey.

At the end of the mapped survey, an interaction diagram that shows interaction patterns in the open-plan office is obtained. Areas that red circles become denser indicate high employee interaction while areas that red circles become less dense indicate poor employee interaction. This interaction diagram is used to compare with maps obtained by quantitative analysis.

Quantitative Data Analysis

The outputs of generic visibility (visual privacy), targeted visibility (visual privacy) and acoustical analysis (acoustical privacy) are maps of the color spectrum, tables and scatter plot diagrams. These outputs of quantitative analyses and qualitative analysis (mapped survey) are compared in order to detect how visual and acoustical privacy affect employee interaction in open-plan offices. Four maps of the color spectrum (generic visibility graph, targeted visibility graph, room acoustics simulation and interaction diagram) are compared according to their color range. Red zones in maps indicate high values while blue zones in maps indicate low values. After the relationship between generic visibility, targeted visibility, room acoustics and interaction is understood, new design solutions are proposed in terms of interaction and privacy.

CONCLUSION

After depth reading about the topic, the existing literature is reviewed and presented. Then, the methodology of the study is proposed after the analysis of previous studies on open-plan offices. After that point, a pilot study will be conducted in order to understand if the methodology of the study is applicable to the research questions of the study. Then, the possible weaknesses of the methodology will be eliminated at the end of the pilot study and the methodology of the study will take its final shape. Then, data collection and analysis processes will start in order to finalize the study.

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A SIMULATION BASED APPROACH TO UNDERSTANDING URBAN GROWTH SCENARIOS

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INTRODUCTION

Cities are changing, growing, and at times shrinking under the effects of complex relationships which we are mostly unaware of. Jane Jacobs[1] says that over planning and segregating influence areas like districts and neighbourhoods for the sake of creating perfect shapes are the root causes of the simplification of complex urban structure, which brings about cities that are difficult and ill to live in. Christopher Alexander[2] argues that each element in the city creates its own influence area, and it is in other elements' influence area. Accumulation of these areas constructs the complex structure of the city. Since the over planned or ill-structured cities are simple, they are unable to grow successfully, and function effectively[3]. Following these arguments, it is accepted that cities are complex systems and mathematical computing helps producing more realistic results in understanding cities, where human mind is inefficient[4].

THE NEED TO UNDERSTAND CITIES AND COMPLEXITY

According to Lefebvre[5], the city is a comprehensive phenomenon that cannot be tied to a single discipline. Beyond being tied to one discipline, the city does not belong to any science, no science denies the city, and cannot fully study it. He says that a formation that brings together all the sciences from mathematics to sociology in order to understand the city may be sufficient, but he also states that it is not possible to make a full analysis of the city with such a formation. The city is argued to be not just an object to sociology, but a chaos and disorder that conceal a hidden order. From this point, he questions the scope of urbanism, and its implications regarding its position in architecture and urban planning. He says that if we think we know what urban is, we don't need science. But if we don't think we know it, we are right to search for answers to this question. Is it global, is it a means to technology, is it a false claim or an ideology?

In parallel with the questions of social sciences, science is interested in the way we consider what a city is. This interest and its inevitable effect on the shift of the city idea can be seen in Figure 1. With the innovations in informatics and the transformation in scientific thinking, the idea of the city has changed. Monocentric conception evolved to an understanding where city centres were disintegrating and sprawling. It can be argued that the breaking point in this change was the Turing machine, which is the foundation of the modern computer. General Systems Theory and Complex Systems Theory gained value with the Turing machine, and they changed the way we thought about cities. Cities then

could be treated as systems, not as mono centres with everything placed around them. Computers became powerhouses for calculating cities as systems. As these new thoughts and calculation systems matured, the understanding of the city as a computable system evolved again. Cities are now regarded as complex systems which display behaviours that are impossible to concretize as strict structures. There is randomness and uncertainty.

Despite the change in the conception of the city, making sense of its complexity with just the human mind is still a problem. On one hand humans tend to make sense of complex systems by over simplification. On the other hand, the human decision making process is treated as complex. This dichotomy of the tendency to oversimplify cities, and the complexity of decision making in urban planning, necessitate an urban growth model as a decision support system. At this point, simulation models come forward.

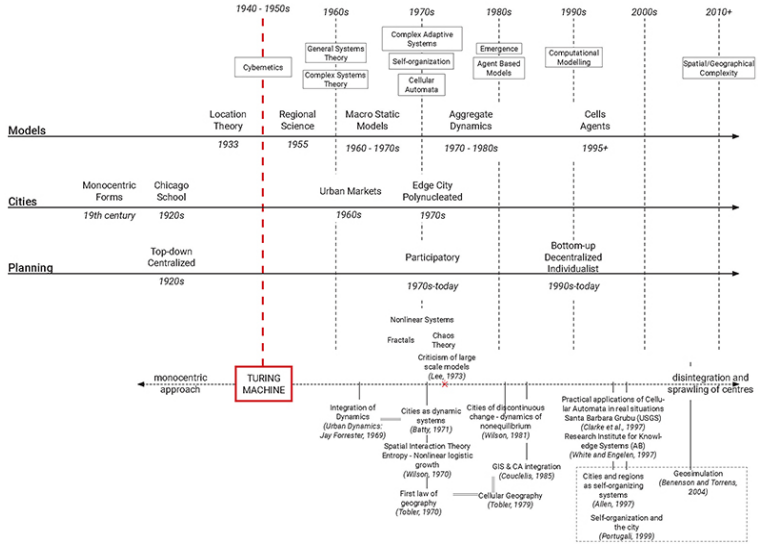

Figure 1. Evolution of Urban Models - Reinterpreted from Batty[6] and Castellani[7]

URBAN SIMULATION MODELS

Urban simulation is used as a tool for investigating urban growth scenarios. The interest in urban simulations increased with the need for understanding the complexity of the cities and the accelerating urban growth. As the theoretical foundations of simulation models were laid, and hypothetical calculations on hypothetical cities gave satisfactory results, real simulations started to be applied on real places with Geographical Information Systems becoming widespread[8]. In the 2000s, the diversity of models increased with sample studies gaining speed in their advancement. There are more than tens, maybe hundreds, of urban simulation models. And not one model is the same as the other one. This fact verifies the complexity and difficulty in urban simulation studies. It also proves the fallacy of standardization and oversimplification of urban theories and models.

This study finds itself in the intersection of complexity science, geographic information systems and urban growth; and utilizes urban simulation models to investigate the urban growth scenarios. One important thing to consider while studying urban simulations is that simulation models don't aim to explain the causes of urban growth[9]. The interpretation depends on the modeller, the data sets and variables they use. Simulation results are not absolute. They reveal future possibilities humans tend to overlook[10]. Since simulations are almost always case-based, they require the modeller to think about

the data and the settings they will use thoroughly. This extensive process enhances the understanding of urban growth factors.

Model Name	Year	Developers	Language	Method(s)
LCM Terrset (IDRISI)	1987	J.Ronald Eastman-Clark Labs	C++, Python, Delphi	Markov Chain, Multi Objective Land Allocation, Artificial Neural Networks
METRONAMICA	1992	Research Institute for Knowledge Systems		NASZ (Neighbourhood – Accessibility – Suitability – Zoning)
CLUE	1996	Veldkamp & Fresco	PASCAL	Multi Objective Land Allocation
SLEUTH	1997	Clarke, Hoppen & Gaydos	C under UNIX	Constraint Cellular Automata
DINAMICA EGO	1998-2015	Soares-Filho BS	C++, Java	Multi Criteria Evaluation
Dyna-clue	2009	Verburg & Overmars	DYNA	Multi Objective Land Allocation
SIMLANDER	2013	Hewitt, Diaz Pacheco & Moya Gomez	R	NASZ
LUCSIM	2015	Antoni & Vuidel	JAVA 8	Markov Chain
APoLuS	2015	Hewitt	R	NASZ
FLUS GeoSOS	2017	Liu, Liang, Li, Xu, Ou, Chen, Li, Wang & Pei	C++	Multi Objective Land Allocation, Artificial Neural Networks
urbanCA	2018	Tong & Feng	R+ARCGIS	Statistics + Heuristics

Table 1. Urban Simulation Models

Some of the major and recent simulation models are listed in Table 1. This is a very limited table of the models available today. It is possible to deduct from this limited table that the models vary greatly in the combination of methods they incorporate. In this study, a recent model called FLUS, Future Land Use Simulation model[11], developed by Liu, Liang and their colleagues, is used. This model utilizes Cellular Automata and Artificial Neural Networks in predicting future scenarios. The simulation is based on the data prepared through GIS software. The land use data and the driving factors of urban growth scenarios were prepared in QGIS and Semi-Automatic Classification Plugin. As it can be seen from the flowchart (figure 2), the simulation process requires the occurrence probability to be computed first. This step is completed in the Artificial Neural Networks module of the model. The information required are the existing land use data, driving factors and the sampling settings. Sampling settings are adjusted according to the number of driving factors. Then this probability data is used as the basis for cellular automata and competition mechanism simulation. Cellular Automata settings require expert knowledge. Neighbourhood weights and effects, and conversion cost are adjusted heuristically. The simulation stops when the simulated cells reach the land use demand which can be computed before with the help of Markov Chain module.

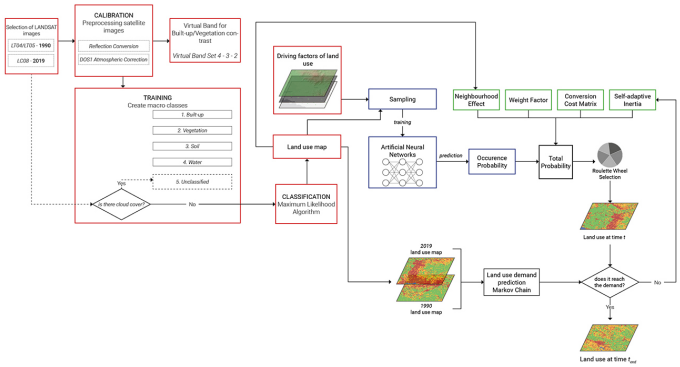

Figure 2. Flowchart

CASE STUDY OF IZMIR

When people think about Turkey, the first city that comes to their mind is Istanbul. After that it is the capital city, Ankara. Izmir (figure 3), despite being the third largest city with a population of 4.3 million[12], seems to be forgotten. The change map showing the urban growth between 1990 and 2019 indicates a greater growth in the future (figure 4). This is a city that needs to be regarded more in local and global sense. For this reason, Izmir was chosen as the case study.

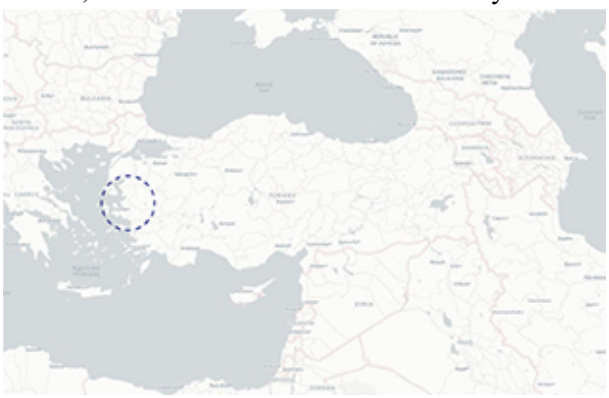

Figure 3. Position of Izmir

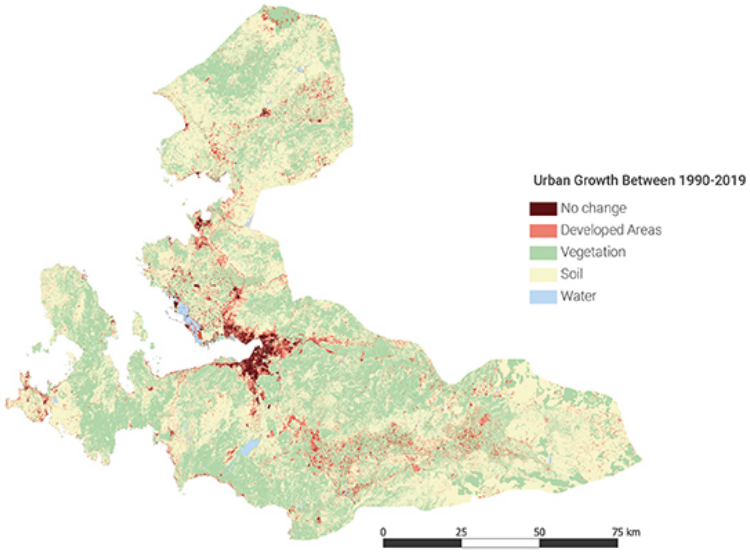

Figure 4. Izmır's Urban Growth Between 1990-2019

For the scenario based simulation, Izmir's development plans and strategies were analysed. Simulation scenarios were based on these plans. The questions the study is constructed from are listed below:

- What are the futures planned for this city?
- How will the development decisions affect its growth?
- What are the factors of urban growth?
- How can we visualize its futures with urban simulations?
- How the factors of growth influence the results?

In order to answer these questions, the plans and strategies regarding the city had to be explored. After that scenarios were created. Simulation scenarios were based on the development points and corridors determined by Izmir Development Agency in the regional report they published in 2015[13]. The report puts an emphasis on agricultural and industrial development. It draws the importance of tourism. There are also points of regional development. Six different scenarios were established according to these development plans. These were named as baseline, transportation, agriculture, industrial, tourism and regional scenarios.

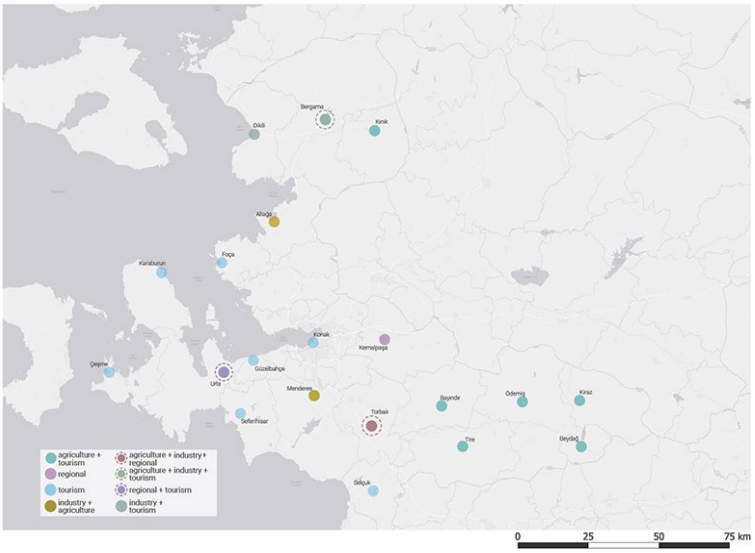

Figure 5. Growth Scenarios of Each Point

The map shows the towns and their relations to the industry-specific plans (figure 5). Dashed points are analysed more closely in the next part. These points are either the merging point of three different sectors or they show a different behaviour than the rest of the city.

Scenario	Driving Factor 1	Driving Factor 2	Driving Factor 3	Driving Factor 4	Driving Factor 5	Driving Factor 6	Driving Factor 7
Baseline	Digital Elevation Model	Slope	Aspect	Primary and Secondary Roads	Harbours	-	-
Transportation				Primary, Secondary and Tertiary Roads	Harbours	Roads Under Construction and Planned	-
Agriculture				Primary and Secondary Roads	Greenhouses	Agricultural Development Points	Rivers and Streams
Industrial					Organized Industrial Zones	Industrial Development Points	Power Plants
Tourism					Harbours	Tourism Points	Touristic Attraction Points
Regional					Harbours	Regional Development Points	-

Figure 6. Scenarios and their Driving Factors

Figure 6 shows the scenarios and their driving factors. Baseline scenario is a must in every scenario based simulation for the comparison of the results. This is the most basic scenario which only incorporates the minimum driving factors. Transportation scenario has more data regarding the roads. It consists of not only the primary and secondary roads, but also the tertiary, planned and under construction roads.

Agriculture, industrial, tourism and regional scenarios are characterized with their diverse driving factors. Development points are based on the points shown in the previous map (figure 5). For agriculture, it is important that development regards existing greenhouses, rivers and streams. Industrial development will be affected by the existing and planned organized industrial zones and power plants. Izmir intends to remain a harbour city, so harbours are of great significance for regional and tourism scenarios. Tourism scenario also incorporates tourism attraction points.

The driving factors need to be processed in GIS software. Calculations based on the first rule of geography are suitable for this step. First rule of geography according to Tobler is this: "Everything is related to everything else. But near things are more related than distant things."[14] In the light of this law, the Euclidean distances of driving factors are computed to be used in simulation (figure 7).

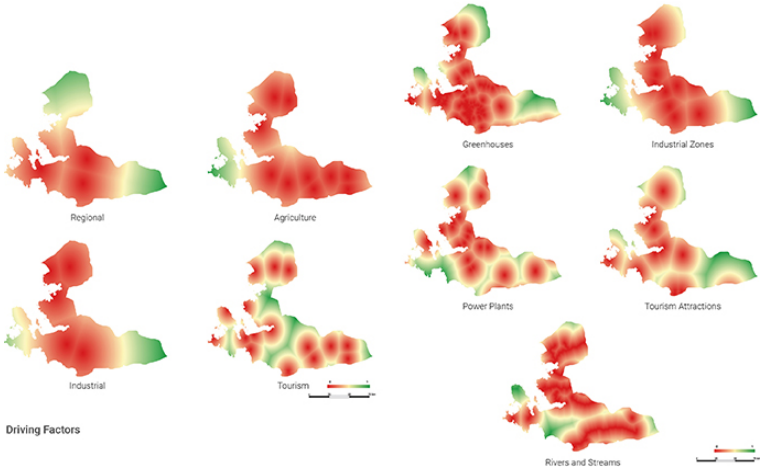

Figure 7. Driving Factors as Euclidean Distance Maps

SCENARIO BASED SIMULATION RESULTS

After the simulation is finished, three focus points are analysed visually. These points are the towns of Torbali, Bergama and Urla which are positioned in the South, North and West of the city respectfully (figure 5). These points are selected for further analysis because they are either the focus points of three different growth scenarios (Torbali and Bergama) or the focus is on an entirely different scenario (Urla).

Simulation results of the town of Torbali where agriculture, industrial and regional focus merge are seen in the figures 8, 9 and 10. Agriculture scenario (figure 8) suggests growth towards the south, to the greenhouses. Industrial scenario (figure 9) growth, however, is towards north, to the industrial zones. Regional scenario (figure 10) shows an equal amount of growth around the built area.

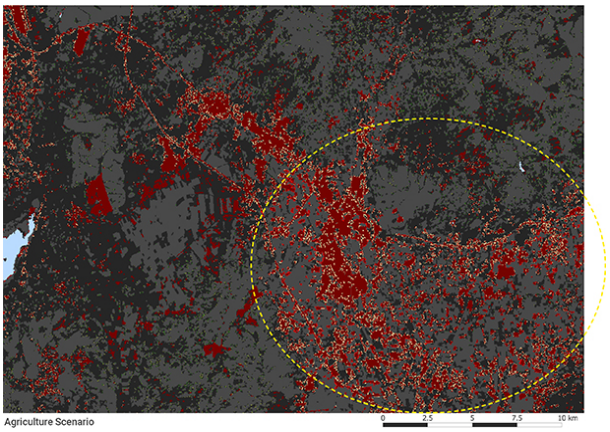

Figure 8. Agriculture Scenario - Torbali

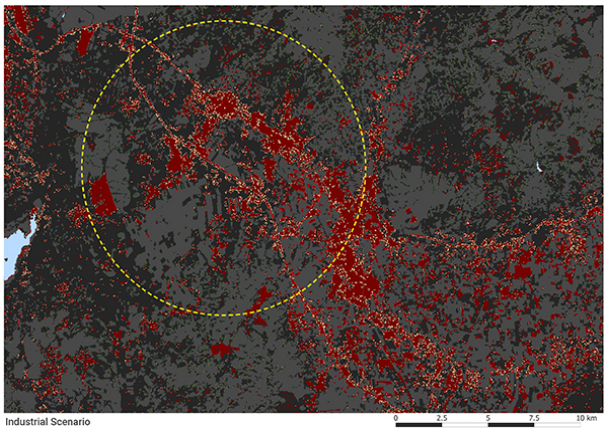

Figure 9. Industrial Scenario - Torbali

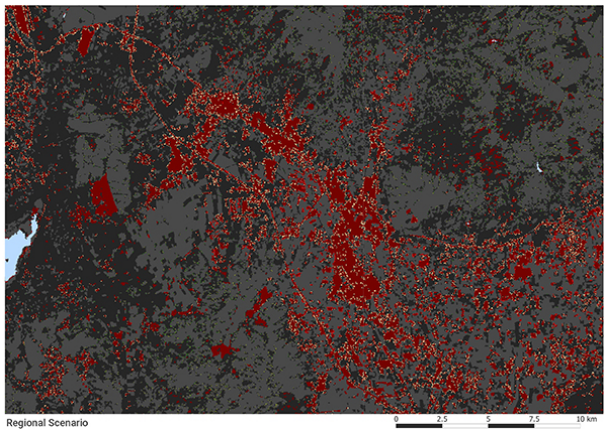

Figure 10. Regional Scenario – Torbali

The town of Bergama is the other point where three different sectors come together. Here these sectors are agriculture, industry and tourism. Agriculture and tourism suggest similar growth patterns (figures 11 and 12). In the industrial scenario (figure 13) there is a region that shows no development. Comparing the result with driving factors doesn't help identifying the reason behind this. This is a possible example of stochasticity of the model mimicking the real urban growth.

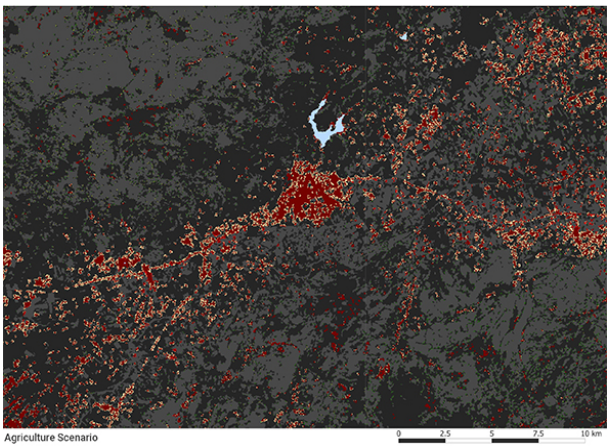

Figure 11. Agriculture Scenario - Bergama

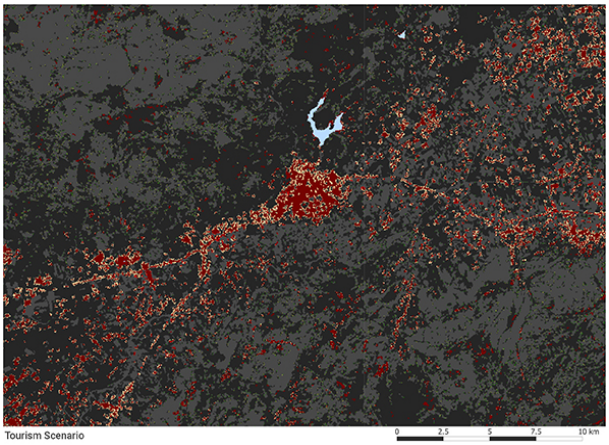

Figure 12. Tourism Scenario - Bergama

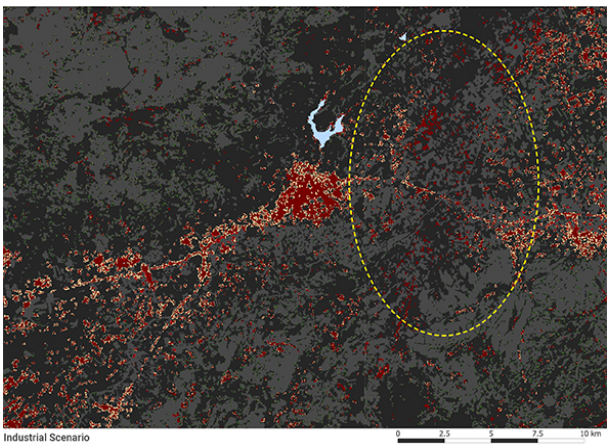

Figure 13. Industrial Scenario – Bergama

The town of Urla is a point which is different from the previous points. Here the focus is on tourism and regional development. Most prominent growth is seen in the regional scenario (figure 14). As a tourism point, it also grows substantially (figure 15). The least development is seen under industrial scenario (figure 16). This is an expected outcome as the town is far away from most of the industrial focus points and driving factors.

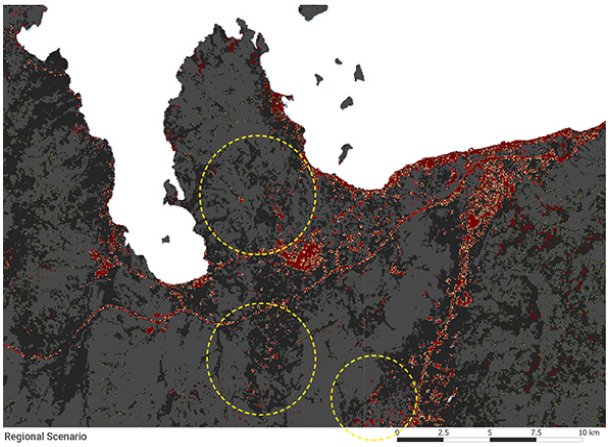

Figure 14. Regional Scenario - Urla

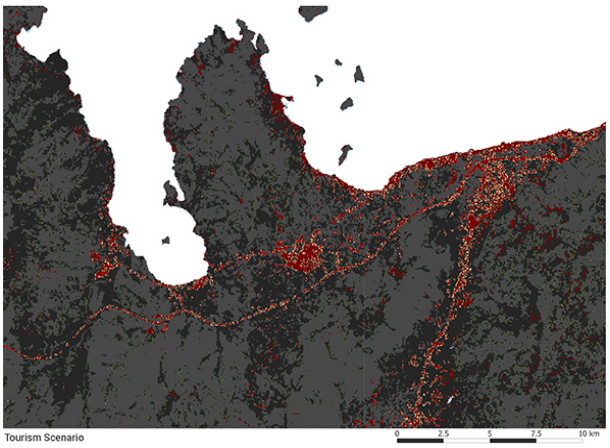

Figure 15. Tourism Scenario - Urla

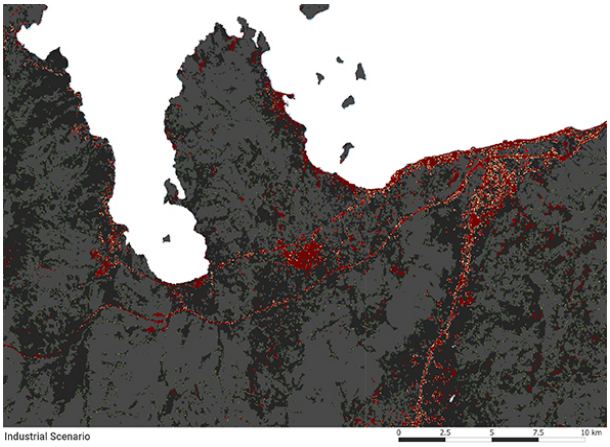

Figure 16. Industrial Scenario - Urla

When we look at the big picture, we see that the regional scenario doesn't offer any development towards the administrative boundary of the city. The reason for this is that the harbours are along the coastline and the regional development points are central to the city. Combining this scenario with others is a possibility for future work. Baseline and transportation scenarios don't differ much in the

growth they demonstrate. The difference is that, as expected, there is more aggregation around new roads under transportation scenario. Simulating these scenarios is effective in seeing what happens when there is no substantial driving factor of urban growth. Results are much more informative under agriculture, industrial and tourism scenarios. Driving factors differ prominently and this produces different areas of incremental growth subjective to the scenario.

CONCLUSION AND DISCUSSION

It is difficult to establish a general framework of urban growth due to its complexity and the variability of urban definition. The question of what urban area is changes in every study. Therefore, analysis and simulation characteristics of each study vary. The simulation settings, land use data, driving factors, methods employed are customized for each individual case. The studies are often interdisciplinary since urban growth models require knowledge from a variety of fields. Application of these models calls for a deeper understanding in both urban theories and simulations.

Comparing all the results in detail shows that working with several scenarios produces many possibilities for each area within the city. It underlines the importance of planning policies and decisions. Correct selection of relevant driving factors imitates real urban growth directions. It will be interesting to see the implications of different combinations of these scenarios and the driving factors in the future studies. Another direction is to incorporate regional dynamics with neighbouring cities in the case of Izmir.

The selected model is consistent in producing acceptable results. Its use of Artificial Neural Networks in calculating probability of occurrence data makes it efficient in handling nonlinear spatial data which at times can be nonessential to the case. The simulation models are more than capable of being used as decision support tools, and the interest in the research area reflects that. The quantity of the studies and the validated urban growth models based on complexity science emphasize the importance of including them in real planning applications. Combined use of planning policies and urban simulations will help improve the models, and decision making processes. The drawback is that the urban simulation process is long, and it requires expert knowledge. Reaching a result might take much longer than the policy makers would want. Or the allure of simulations might take away from the importance of taking actions. In short, they need to be handled with care and awareness of the theoretical and technical background they call for. It must be kept in mind that there is no certainty in the results, but many possibilities.

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ACHIEVING CONTEXTUAL SENSITIVITY – AN ORGANIC APPROACH OF BRITISH URBAN INDUSTRIAL HERITAGE REGENERATION

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INTRODUCTION

Heritage is a sensitive word in the field of architecture and urban design, bringing the coexistence of both limitations and opportunities in practical projects. Industrial heritage is fairly representative of the abovementioned circumstance. During the past 20 years or so, a gratifying trend of reconsidering the value of industrial heritage has gradually prevailed. At the same time, the rapid growth of modern cities urged the necessity of dealing with left-over industrial places appropriately.

During years of exploration about urban issues, the environmental and social value of a regeneration project has gained increasing attention. As a response to contextual peculiarity, the concept of organic renewal was proposed in the late 20th century and contributed to historical quarter regeneration in cities.

However, this approach did not go prosperous as expected because of its over-conceptualization, lacking detailed instruction for practical application. It calls for a more comprehensive strategy dealing with historical and contemporary contexts equally in an urban industrial heritage regeneration case. In such circumstances, the theory of contextual sensitivity emerged based on both a preservational and developmental perspective. Originated from transportation planning, the context-sensitive solution provides a system of responding to context influences in urban thoroughfare developments. It also inspired the idea of creating a context-sensitive community.

This paper highlights the importance of contextual sensitivity for a successful urban regeneration project based on the aforementioned theories. Therefore, the concept of organic regeneration got more developed and action-oriented. It focuses on urban industrial heritage quarters, aiming to explain how the specialty of contexts contributes to reestablishing heritage identification and revitalizing the urban industrial space. Four examples of British urban industrial heritage quarter regeneration projects will go through a comparative study to show the flow of the contextual sensitivity system and illustrate the outcomes of contextually sensitive projects.

INDUSTRIAL HERITAGE AND URBAN REGENERATION

Cities are evolving all the time to adjust to various circumstances. Over the last 50 years, many cities have experienced a period of rapid change causing by the transition of economic and social structure. Physical consequences left from the sudden transformation can be easily noticed as “large-scale

abandonment and dereliction of land and buildings, degraded environments, unemployment of labor, and acute social deprivation"[1]. Problems were particularly serious in industrial sites because the more industry relies on its prosperity on the economy, the harder they are likely to survive during social instability. It matters to know that industrial heritage is precious and deserves more indicated approaches in urban regeneration.

Understanding the Value of Industrial Heritage

Industries have made a significant contribution to shaping the modern world. The remains of industry, such as factory "buildings, landscapes, sites and precincts as well as more everyday structures and spaces," all give rise to form "our cities, towns, and regions their own character"[2].

In 2003, The International Committee for the Conservation of the Industrial Heritage (TICCIH) defined industrial heritage as "consists of the remains of industrial culture which are of historical, technological, social, architectural or scientific value"[3]. In this scope, industrial heritage can be seen as any physical piece of evidence that can illustrate the "past or ongoing industrial process of production"[4]. Besides tangible relics, industrial heritage also contains intangible aspects as shown, acting as a link to the city's cultural, historical, social, economic, technical, and aesthetical context.

Historical Value	Technical Value	Social Value	Aesthetic Value
Providing evidence of relevant human activities which "had and continue to have profound historical consequences"[5]	Recording the skills, knowledge, and experiences of predecessors	Establishing part of the urban identification	Conveying the beauty of industrial as a perfect combination of function and form[6]
Maintaining the industrial memory as the cultural symbol of a city	Providing sufficient documentation in archeology and education	Creating strong and long-lasting emotional attachment with residents	Illustrating the purity of structure and fabric
Revealing the ambition of human development	Impelling technological exploration in the process of conservation	Contributing to the continuous development of the local economy	

Table 1. Value of industrial heritage

From a heritage perspective, industrial heritage places and spaces are the linkages between the contemporary world and the efforts of the past. They represent the industrial past and reflects the industrial culture of a particular historical period. The heritage value of industrial relics lies in historical, technical, social, and aesthetical aspects explained in Table 1[7], including both tangible and intangible vectors.

Role of Industrial Heritage in Urban Regeneration

By the middle of the 19th century, many industrial cities declined in technological transition, putting new urban post-industry society in place. What followed the deindustrialization was a series of social issues. Large industrial sites and ancillary apartments and shops were left abandoned in and around the

center of urban areas. The increase in the unemployment rate gave rise to social disruption. Environmental problems were more widely impactive for the whole urban area, such as polluted industrial sites, unclean water systems, and air pollution. The abovementioned circumstances called for urgent actions to develop appropriate urban regeneration approaches.

The potential of industrial heritage is highly valued in urban regeneration as they provide both tangible and intangible opportunities for urban development. Industrial sites can be regarded as a catalyst to enable community engagement, social inclusiveness, and environmental sustainability in reshaping place identification[8].

Firstly, the industrial heritage sites are the material resource for multiform urban reconstruction, for industrial sites offer cheap and sufficient space, and industrial buildings provide efficiently utilized structures for further transformation. They left adequate flexibility to adapt to contemporary society. Not limited to the physical vectors, the resources provided by industrial heritage also interacts with other cultural, conventional, social, and environmental resources. People can see that a large number of urgent social issues will get remitted, such as housing shortage, unemployment, lousy infrastructure quality, environmental pollution, and insecurity. That is to say, the more to be desired, the more possibility.

Secondly, industrial heritage exerts far-reaching influence on the economic climate. Industrial sites, whether or not they are still working as the primary function, "possess a rich structure of social capital". The economic potential of industrial sites lies in many economic activities, like tourism, real estate development, employment, and investment. A successful regeneration project is expected to be a long-lasting plan in which capital flow must be considered in detail flexibly, adaptably, and sustainably.

Thirdly, industrial heritage contributes to reshaping the local place identification. By innovatively reinterpreting the existing relics, industrial heritage conservation maintains collective memories of relevant people, creating a sense of belonging and nostalgia. Also, the reconstruction of abandoned industrial sites will create new urban identification and adding value to the local community.

In recent practices of development, industrial heritage acts as an instrument for urban regeneration. "It reinforces urban character and identity, provides tourism drawcards, increasing amenity and acts as the focus of economic development" [2]. It is gratifying to see that industrial heritage finally regains its position in the present and future of human history.

CONTEXTUAL SENSITIVITY – EXTENDING THE DIMENSION OF ORGANIC REGENERATION

Urban regeneration is never an isolated process. It is a complex, integrated, and cooperative system with many social factors, such as the economy, polity, and environment. Aiming to ameliorate the passive influence of deindustrialization and stimulate urban investment attraction in the global economic environment, experts have explored and attempted different approaches for years[9]. Organic regeneration is an inspiring approach that applies moderately bottom-up actions to give sufficient flexibility for the project's self-regeneration and self-restoration. However, as the theory was too conceptual for practice and too pertinent to sites, it did not widely prevail. The motivation of bringing in contextual sensitivity is to extend the dimension of the organic renewal concept and go further in guiding practical actions.

Organic Renewal

Metaphorically speaking, the city is a living organism for millions of people to work and live. Its components and tissues are always undergoing a metabolic process. The regeneration of urban tissues

should evolve to integrate with useful and relevant elements harmoniously, gradually, and efficiently substituting the unsuitable with the suitable without seriously impairing the overall functioning of the city.

The concept of organic renewal was proposed by Prof. Liangyong Wu, famous Chinese architecture and urban planner. In the early 1990s, the old city of Beijing, especially its traditional residential area (known as Hutong), was under urgent need to be renewed in order to improve the living environment of the Hutong area, as well as maintaining the historical texture and cultural context. Instead of an original large-scaled reconstruction method, organic renewal comes in a quite moderate manner, recommending "a suitable scale of development, humane design, and coordination of present and future needs"[10].

The practical meaning of organic renewal is that rehabilitation may start from a small area proportional to the funds available, and the scale of work may be expanded until it is self-sustainable. This idea planned to carry out progressively, dealing with small-scale urban pieces until they ultimately achieved a relative integrality. However, this principle did not go further at that time because it was too conceptual and macroscopical for practice.

Recently, many urban regeneration studies began to refer back to this once underestimated concept. Although initially rooted in the specific context of Beijing, the potential and possibility of this principal values more in the rehabilitation and maintenance of historical urban quarters and subsidiary infrastructures. Moreover, the idea of respecting and responding to texture and context kept influencing later regeneration concepts.

Contextual Sensitivity

During the years of urban regeneration attempts, the importance of contextual influence has never been forgotten. A comprehensive system of Context Sensitive Solution (CSS) has been promoted by both AASHTO[11] and FHWA[12] to achieve the best outcome in transportation system development projects through the process of planning, operation, and maintenance. Aiming to address the significance of social values and community needs, CSS is an inclusive process to enhance urban identification and livability.

Since 1998, this idea began to prevail in many American States' DOTs[13]. The FHWA defines context CSS as: "a collaborative, interdisciplinary approach that involves all stakeholders in providing a transportation facility that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions."[14]. In this definition, context and stakeholders are generalized descriptions. Context refers to "a project's physical, economic, and social setting"[15], which may "include the community, ecological, aesthetic, and transportation conditions as well as the political and policy environment". Stakeholders cover all possible affected people and organizations, such as "agency staff and elected officials, organized groups, area residents, and business owners"[15].

In 2016, Prof. Tim Heath proposed his theory of contextual sensitivity as a rethinking of the contemporary top-down sustainability strategy. He sees the reality of sustainability in many cases is gradually becoming redundant rhetoric with little back-up substance and evidence like a marketing ploy. Instead of the traditional declaration of "Think global, act local"[16], he argues a better process should focus more on the particularity of each project, which is "Think local, act local, impact global"[17]. Based on this critical idea, a contextually sensitive project is expected to be "the symbiotic relationship between humanity and earth that facilitates social, economic, political, cultural and environmental prosperity, so that quality of life, efficiency and fairness is continually enhanced, whilst

simultaneously ensuring all forms of life and resources on earth may be sustained for the enjoyment and creativity of future generations"[17].

Although applying in different fields, the contextual sensitive ideas share many common tenents. The value of the theory is it highlights the role of context-awareness in planning and development, emphasizes the significance of public engagement, and pursues a sustainable and livable community.

CONTEXTUAL SENSITIVITY FOR URBAN INDUSTRIAL HERITAGE REGENERATION

It can be seen from the previous description of the theoretical foundation that contextual sensitivity can be concluded as a holistic approach, with systematic guidance for project management. It enhances the basic concept of organic renewal, as well as remedies the limitation with a series of comprehensive, detailed, and systematical approaches.

Prospects and Principles

By applying the context sensitive approach to industrial heritage regeneration projects, the ultimate goal is to add lasting value to the community, the environment, and especially the heritage itself. The way leading to the prospects should act from a full-scale perspective. Firstly, balancing environmental, scenic, aesthetic, cultural, and natural resources with community values, heritage preservation needs, and economic vitality. Secondly, maintaining to be sustainability while minimizing disruption to the community and the environment. This may need to refer to some other mature criteria system, such as BREEAM[18] or CIA[19]. Thirdly, effective and efficient use of resources (people, time, budget) among all parties and address the goals of all participants through the public involvement process. The tradeoff is not easy among different stakeholder groups, and this approach is neither a guarantee of success. However, it can contribute to minimizing latent problems and delays, identifying community value, and evaluating alternative solutions[20].

Principle Vectors	Targeted Objectives for Transportation System	Targeted Objectives for Urban Industrial Heritage Regeneration	
Safety	User	User	Creating a safe place for users
		Heritage	Safely and furtherly conserving the tangible and intangible heritage
Sustainability	Environment Economy	Environment	Creating a sustainable ecological environment
		Economy	Impelling a long-lasting and self-sustaining economic circle
		Heritage maintenance	Maintaining the heritage as a flexible and adaptable element
Efficiency	Speed Resource Service	Management system	Having the ability to respond and act effectively
		Resource	Efficiently manage the use of natural and social resources
		Service	Being easily accessed to daily services
Public Engagement	Policymakers Investors Developers Residents	Policymakers	
		Investors	
		Developers	
		Residents	
		Tourists	
Community	Residents Pedestrians	Residents	Establishing a livable community for local residents
		Heritage insiders	Respecting and protecting the collective memories of heritage relevant insiders
		Tourists	Creating a vital for the passer-by
Placemaking	Public space Neighborhood Local area	Heritage quarter	Conserving the historical, technological value of industrial heritage
		Public space	Creating an active public space for users
		Neighborhood	Establishing a place that gives residents a sense of belonging
		Local area	Enhancing urban identification in the regeneration process

Table 2. Enriched principles for urban industrial heritage regeneration

When focusing on the particularity of industrial heritage, principles of achieving contextual sensitivity should be adjusted to adapt to the requirements of heritage revitalization. Especially for those in urban settings, the context is more diverse and complicated. The five vectors of principles listed in Table 2[21] illustrate the enrichment for targeted objectives. Applying the context-sensitive design in the industrial heritage regeneration, the intrinsic value of industrial relics and their relevant background should be the primary focus points. Simultaneously, the revised principles also take the interaction with users

and the lifecycle of project management into consideration. Based on the principles of the transportation CSS system, the industrial heritage system provides a practical reference for the organic regeneration concept.

The Process of Achieving Contextual Sensitivity

To applying the context sensitive approach, there are five steps as a guide. The first step is to identify the project's context, getting a comprehensive understanding of the status and target. The next step is to categorize the context elements into physical and social aspects in order to assist further analysis. Afterward, the project and context elements should go through a suitable criteria system and negotiate with stakeholders, evaluating the potential and value of context elements. Later on, the project is expected to step into the responding process, which is to plan and develop according to context analysis. Finally, the planned strategies should reassess themselves from the principles to see if any adjustment is needed to achieve the project's prospect. (Figure 2[22])

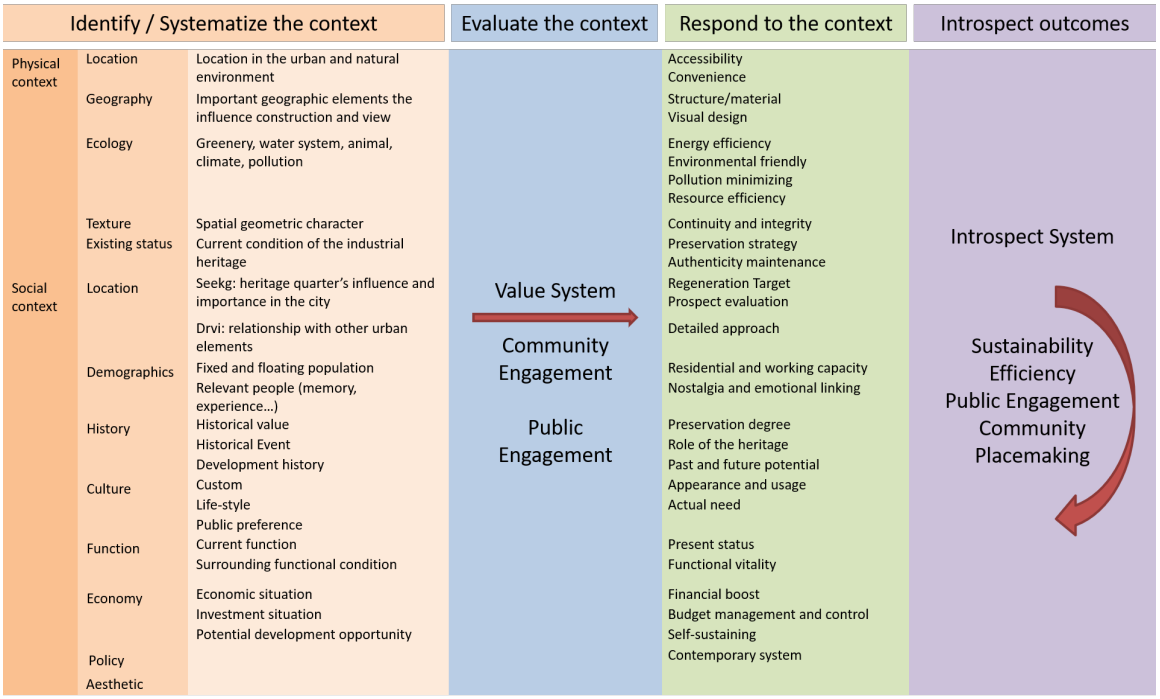

Figure 2. The Process of Achieving Contextual Sensitivity.

Different Contexts, Different Outcomes

Different cities, different heritage types make projects unique for their contexts. In this part, there selected four representative urban industrial heritage cases in the UK. These analysis and comparison are examples, showing how different elements contributes to the outcomes and how the design process is sensitive to the context. As finished regeneration projects, the last step of introspection might not be available, but we can imagine a thoughtful design of consenting on the final plan had been carried out during the whole process.

The situation before regeneration varies from every case. King's Cross quarter is an important transportation hub in central London. Initially, it was also a famous industrial site with gas works, coca-cola factories, granaries, and canal docks. Before regenerated, it has large-scaled left-over spaces and factory structures. Spike Island of Bristol is a beautiful eyot island inside the river Avon. It was an important port in history, marking the prosperity of the British marine time. No wonder that currently, it has a lot of industrial remains like shipyards, factories, cranes, and warehouses. Many of the

shipyards are still serving as part of the boating club. Jewelry Quarter in Birmingham is a cluster of jewelry handcraft workshops. Although not in the traditional city center, Jewelry Quarter is a core area combined with small businesses and dwelling sections, possessing a strong sense of community. Albert dock of Liverpool is a famous enclosed dock area along the river Mersy. It is a series of dock factory buildings, giving a fascinating structure of introverted physical texture.

Due to the different contexts, the strategy varies for each project. King's Cross quarter is a mainly government-led project with some common spaces open to public suggestions. King's Cross and St. Pancras Station bring an endless stream of visitors and provide excellent accessibility, making it an essential cultural and economic center. The development target of this site is to create a tourism attraction as an economic boost action, inviting in culture and art organizations, commercial center, company headquarters, and high-end apartments. (Figure 3[23])

Figure 3. London King's Cross quarter canal side.

For Spike Island, most of the museums, educational buildings, and the refurbishing of the riverside environment are supported by the government; other residents' activity and service functions are community-led. Taking advantage of its natural resources, Spike Island focus more on maintaining the water activity tradition, as well as creating a livable environment. Communities contribute a lot to vitalize daily life with public recreation spaces and neighborhood activities. (Figure 4[24])

Figure 4. Bristol Spike Island harbour.

Jewelry quarter is quite a unique old handicraft industry quarter. The traditional workshops and craftsman have already formed their own community as an intangible relationship. They had a solid emotional relationship with the place. The government helps to stimulate the city area by implanting public places and improving public services. That's where industrial heritage is still living and become part of the residents' life. (Figure 5[25])

Figure 5. Birmingham Jewelry Quarter.

Albert Dock is a successful, profit-led project led by the government as a heritage tourist attraction site. The difference between King's Cross quarter is, it put the role of industrial heritage building forward. By emphasizing the architecture and urban texture of the dock, heritages become the protagonists. Not only providing places for activities, they themselves are the activities. As expected, thousands of tourists come here to experience the industrial atmosphere created by well-refurbished dock buildings and facilities. (Figure 6[26])

Figure 6. Liverpool Albert Dock.

If we look at the current status of the four sites, each one has it's own characteristics, and the features they have now are specifically sensitive interacting with the contexts. After going through the contextural sensitivity analysis, people see an inspiring result that each case has reshaped their own cultural and social identity and is working organically and sustainably in their contexts. (Figure 7[22])

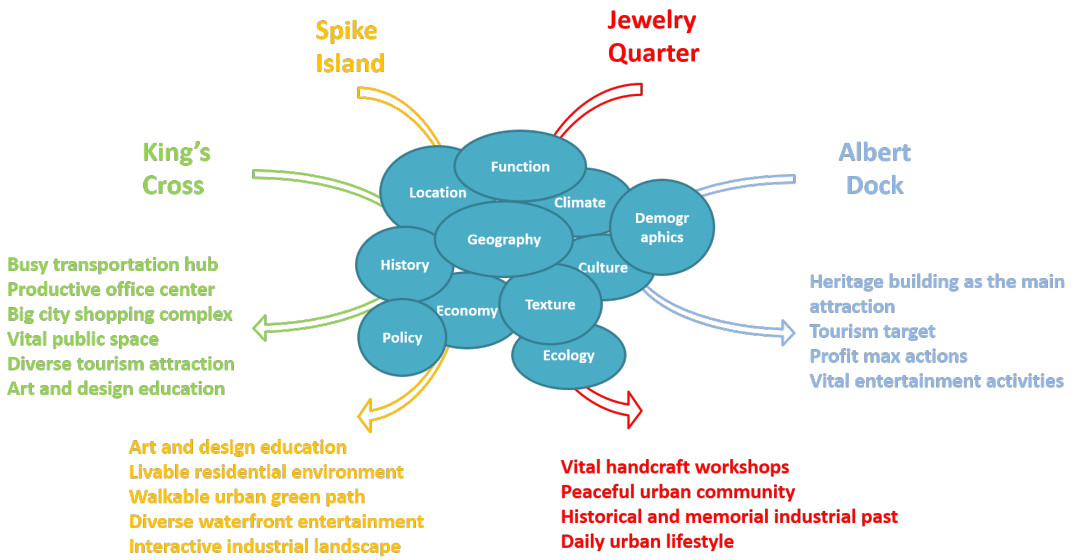

Figure 7. Four contexts, four outcomes.

CONCLUSION

The theory of contextual sensitivity is proposed based on both preservational and developmental perspectives. It is a comprehensive strategy of treating the historical and contemporary context equally, and analyzing the regeneration potential from environmental, social, cultural, and economic aspects. Through the practical methods, it helps to maintain the self-identification by rediscovering and restoring essential industrial heritage elements, brings up an organic way to cooperate with the city context, achieving continuous vitality and sustainability to the site's original layer even impact a broader city area.

The contextual sensitivity is based on the concept of organic renewal and the practical system of Context Sensitive Solution (CSS), while extending the dimension to the original concepts to adapt to the specialty of urban industrial heritage quarters. If we highlight the theory and practice in one sentence, that should be "Think Contextually, Act Sensitively, Impact Organically."

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VANCOUVER AS AN AGE-FRIENDLY CITY? FROM A SOCIAL WORK PERSPECTIVE

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INTRODUCTION

People now have a longer life expectancy, and the population is aging. According to the World Health Organization, "in 2010, an estimated 524 million people were aged 65 or older – 8 percent of the world's population. By 2050, this number is expected to nearly triple to about 1.5 billion, representing 16 percent of the world's population."[1] The development and planning of a city need to be responsive to the needs of the changing population. We often heard the term an age-friendly city. The author of this paper, who is a registered social worker, will examine to what extent Vancouver in British Columbia of Canada is an age-friendly city, what things the city does well, and what the room for improvement is, from critical social work lenses.

What is an age-friendly city?

There are many sources where the term age-friendly city comes from. However, the World Health Organization's *Global Age-Friendly Cities Project* is the source that is most commonly referred to.[2] 35 cities in the world participated in this project. Seniors, caregivers, and service providers in different cities shared their thoughts on an age-friendly city in focus groups. The project published *Global Age-friendly Cities: A Guide* to share its findings in 2007. According to the guide, "in an age-friendly city, policies, services, settings, and structures support and enable people to age actively by recognizing the wide range of capacities and resources among older people; anticipating and responding flexibly to aging-related needs and preferences; respecting their decisions and lifestyle choices; protecting those who are most vulnerable; and promoting their inclusion in and contribution to all areas of community life." The guide suggested eight domains to examine to what extent a city is age-friendly, including outdoor spaces and buildings, transportation, housing, social participation, respect and social inclusion, civic participation and employment, communication and information, and community support and health services. It suggested a "checklist" of an age-friendly city under each domain. We will further explore the housing, transportation, social inclusion, and social participation domains in this article.

Vancouver, British Columbia, Canada

According to the Canada 2016 Census[3], Greater Vancouver has a population size of 2,463,431. It is the third-largest census metropolitan area (CMA) in Canada in terms of population. It is also the largest CMA in Western Canada in terms of population. The largest CMAs in Canada in terms of

population are Greater Toronto, Greater Montreal, and Greater Vancouver. Their populations are 6,417,516, 4,098,927, and 2,463,431 respectively. 48.9% of Vancouver's population, that is, 1,185,680 people, is a visible minority. Vancouver is one of the most culturally and racially diverse CMAs in Canada. 15.7% of Vancouver's population, which is 387,315 people, is 65 years old or above.

The purpose of this paper is to explore to what extent Vancouver is an age-friendly city and explore what areas Vancouver is doing well and what areas Vancouver has room for improvement. The author will critically explore the housing, transportation, social inclusion, and social participation domains of an age-friendly city from critical social work lenses. The author of this paper is a social worker practicing in Vancouver working with the seniors and their families in a diverse setting including community senior service centre and long-term care. The social work lenses the author will bring in will be the person-in-the-environment lens, intersectionality lens, and systems lens.

PERSON-IN-ENVIRONMENT LENS

The person-in-environment lens refers to that the well-being of a person is influenced by the environment surrounding them and a person's well-being is achieved when there is a good fit between the person and their surrounding environment.[4] When we apply this lens to an age-friendly city, it means that the well-being of seniors is influenced by the planning and development of the city, and the seniors' well-being is achieved when there is a good fit between them and the city. The author will examine the housing and transportation domains of Vancouver using the person-in-environment lens below and will suggest that there is a lack of good fit between seniors and the city in Vancouver on housing and transportation in terms of affordability.

Housing

Senior households are indeed more likely to own properties than working-age households because they or their partners worked for a longer time. According to the Canada 2016 Census, "the homeownership rate was 43.6% among 20 to 34 years old in 2016. This compares with 70.1% for persons aged 35-54. The homeownership rate was highest at 76.3% for 55-64 years old, and was slightly lower, at 74.6% for the population aged 65 and over."[5]

However, according to Ivanova[6], although Canada has no official poverty line, the low-income cut-off is often used by Statistics Canada as an indicator of poverty. The low-income cut-off is $15, 000 per year. Most seniors are above the low-income cut-off. However, many are only slightly above it, that is, having an income between $15, 000 and $25, 000 per year. In 2014, 12.7% of seniors in British Columbia were below, and 44% were slightly above the low-income cut-off. Considered the high housing and related costs in Vancouver such as cable, insurance, and repairs, and that many seniors have additional spending than other age groups on things such as medication and equipment, many seniors are invisibly in poverty. They are "property rich but cash poor".

A significant proportion of seniors rent. In British Columbia, 19% of seniors rent.[7] The rent in Vancouver is rising rapidly and beyond the affordability of many senior renters. For example, the average monthly rent for a one-bedroom apartment in Vancouver is $1, 038.[8] However, most seniors only have an annual income between $15, 000 and $25, 000, that is, between $1, 250 and $2, 083 per month. There is a rent subsidy program in British Columbia Shelter Aid for Elderly Renters (SAFER) which seniors can apply. However, many seniors are not aware of the rent subsidies.[9] Even if they do, the rent subsidies are minimal compared with the rising rent. For instance, the maximum of the SAFER subsidies per month is only $765 for Vancouver and many seniors are not getting the maximum subsidies.[10]

There are subsidized housings such as social housing and co-op housing which seniors can rent at an affordable rent. However, the waiting list for subsidized housing is long. In Vancouver, the waiting time is at least 2 to 3 years and can be up to 10 years.[11] The seniors are at risk of being evicted by the landlords either because they cannot afford the rapidly rising rent, or the landlords want to sell the property for better profits. Some seniors end up being homeless for the first time in their lives.[12] It is challenging to calculate the exact number of seniors who are homeless because many seniors are invisibly homeless, for example, those couch-surfing in family and friends' homes.

About 15% of senior households experience core housing need, that is, "living in housing that either requires major repairs, costs more than 30 percent of total before-tax household income, and/or does not have enough bedrooms for the size of the resident households.").[13] This percentage is about the same as working-age households. However, the divide on experiencing core housing needs between the senior households and working-age households is more obvious for renters, which is 42% and 29% respectively.[14]

Housing is an important social determinant of health.[15] It is related to a person's physical and mental health. We need to consider how we can support seniors' well-being by including their needs for affordable housing in good condition into our plans of city development.

Transportation

Vancouver has transportation subsidies for seniors such as seniors' bus pass.[16] However, the current public transit system is not senior-friendly enough.[17] Many seniors have mobility issues and use mobility aids. There is often not enough room for multiple wheelchair and scooter users or not enough seats for walker and cane users. Automobile ownership thus becomes a need in these situations. However, many seniors cannot afford automobile ownership, including the cost of insurance and gas.[18] There is HandyDART, door-to-door shared-ride transportation for people with physical and cognitive disabilities.[19] However, it needs to be booked well in advance and sometimes it is not easy to book due to limited HandyDart resources. There is a taxi saver which subsidizes 50% of the taxi fare.[20] However, taxis may still not be an option because it can still be expensive even if there are taxi savers.[21] There are Better at Home volunteer driver programs, which volunteer drivers will take seniors to medical appointments and social events.[22] However, currently, many of these programs lack volunteers and funding. Many volunteers are seniors themselves and there are concerns for the safety of both drivers and service users during times like COVID-19 which seniors are vulnerable to the global pandemic.

Transportation is important for seniors to connect with different services and people so that they can have their needs met and are socially connected. Having needs met and being socially connected are related to the physical and mental health of seniors. We need to consider how we can support seniors' well-being by including their needs for affordable transportation which are friendly to people of different abilities into our plans of city development.

INTERSECTIONALITY LENS

The intersectionality lens refers to that a person has multiple identities.[23] Each identity puts the person in different positions. Each position gives personal privilege or disadvantage. These identities intersect. A person usually has both privileges and disadvantages. However, some people have multiple disadvantages which put them in marginalized positions. When we apply this lens to an age-friendly city, it means that we need to consider during city planning and development that some seniors may have multiple disadvantages which put them in marginalized positions which we need to

pay more attention to. The author will examine the social inclusion and participation of seniors in Vancouver and will suggest that some seniors would have more challenges to be included and participate in the city planning and development process.

Social inclusion and participation

Vancouver indeed has many initiatives to include seniors and encourage their participation in the city development process. The city of Vancouver has a Vancouver Seniors Advisory Committee.[24] Its purpose is to "advise (the City of Vancouver) Council and staff on enhancing access and inclusion for seniors, the elderly, and their families to fully participate in City services and civic life."[25] The city of Vancouver also published Vancouver's Age-Friendly Action Plan in 2013.[26] Seniors, caregivers, and service providers shared their thoughts on the plan in focus groups. One thing to highlight is that this plan includes many dementia-friendly initiatives, which are less mentioned in the World Health Organization's Age-Friendly Cities Project Guide.

However, there seem to be implicit assumptions in this action plan on what active aging is, such as exercise and going to community senior centre. What if some seniors really cannot fulfill these assumptions because of different reasons especially physical and cognitive barriers? Active aging leads to health, but health is also the pre-requite for active aging! The author concerns to what extent these seniors can be included in the consultation process of city development and planning, as well as how seniors of different abilities can participate.

The action plan includes dementia-friendly initiatives in city planning which is pioneering. However, it seems that the parties who bring these initiatives to the table are the social service agencies and family caregivers. It resembled the situation of many previous research studies on people living with dementia that people who were included and participated were family caregivers.[27] There are more recent research studies that try to shift the focus to people living with dementia.[28] There should be more discussions on how people living with dementia can be included and participate. Simple things such as the use of plain language and meeting in the daytime could already make a huge difference in supporting them to participate.[29]

Apart from seniors with physical and/or cognitive disabilities, there are other groups of seniors who are in multiple disadvantages. They face higher risks of social isolation and marginalization according to different studies, such as seniors who live alone[30], senior women[31], immigrant seniors[32], Aboriginal seniors[33], and LGBTQ seniors[34]. Some highly vulnerable seniors even become the target of hate crime. For example, recently, an Asian senior living with dementia with multiple and intersecting disadvantages, including racism, discrimination, and stigma against people living with dementia by people and the city, was assaulted in East Vancouver.[35]

SYSTEMS LENS

Systems lens refers to that a person is surrounded by different systems. An example of a system is the family system. When we apply this lens to an age-friendly city, it means that the seniors and people around them such as their family caregivers influence each other's well-being. The planning and development of the city need to take these people around the seniors into consideration.

Aging in place is a concept promoted by the Canadian government in the last 20 years. However, there are not enough services to support seniors and families such as home support, respite care. The care for seniors now falls mainly on families.[36] We need to take the needs of family caregivers into the plans of city development.

Systems can also refer to the community system. Seniors are one of the most vulnerable populations in the COVID-19. It is an opportunity for us to learn how to connect with seniors in our city. For

example, Safe Seniors, Strong Communities is a program in British Columbia that links seniors with services in their communities by volunteers such as grocery shopping, medication pick up, meal delivery, friendly phone calls, phone, and online programs.[37] It reaches the most isolated. To what extent this can be sustained after COVID-19? What are the implications of the development of technology? To what extent seniors feel comfortable with this change? To what extent this learning can be further developed after COVID-19?

CONCLUSION

The author of this paper who is a social worker examined to what extent Vancouver in British Columbia of Canada is an age-friendly city. She critically explored the housing, transportation, social inclusion, and social participation domains of an age-friendly city from critical social work lenses, including the person-in-the-environment lens, intersectionality lens, and systems lens. She found that Vancouver has certain measures in place, but there is still large room for improvement. There should be more affordable housing in good conditions for seniors in the city because housing is closely related to seniors' health, mental health, and well-being. There should be more affordable and age-friendly transportation for seniors so that seniors can access the services they need in the city. More attention should be paid to seniors with multiple disadvantages who are marginalized in society.

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FORMING BONDS: A NEW SOCIAL INNOVATION PERSPECTIVE FOR IZMIR LIVING LAB EXPERIENCE

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INTRODUCTION

Since 2011, the World has fluctuated with a new wave of migration. Refugees and asylum seekers from Syria flooded into the world to find peace. Turkey, as being one of the host countries, it became the most populated Syrian Emigrant country in the World. There has been a great leap at the number of refugees from 2012 to 2015, from 10thousands to millions as a result of the open-door policies. In the first half of 2020, the number of Syrians under "Temporary Protection" is 3.579.318 people.[1] While Turkey was a transition point to the EU for a number of asylum seekers at the beginning, it turned to one of the host countries.

One of the host cities of these refugee seekers became Izmir, because it was a transit city to Greek islands. But, since then, Izmir had evolved into a host city rather than a transit one. Thus, the Syrian community grew into being "our neighbors" instead of "our guests".

The main settlement location for Syrians in Izmir is a quarter called Basmane, Kapılar (Gates) which is located at the center of Izmir and offers affordable rents and employment in marginal sector and other jobs of which are mostly temporary and low wage in walking distance. Basmane, especially Kapılar has been the gate to the city for immigrants for centuries. Today, the quarter is permanently settled by urban poor, immigrants, emigrants, and temporarily settled by those seeking to take sanctuary in Europe.

Although the place has historically been the gate to the city and a migrant settlement, deficiency of social inclusion is one of the urban problems of Basmane as well as Izmir. Moving on with this, a micro-level (neighborhood) social innovation model and a living together experience through urban living lab methodology was formulated. Differing from previous examples of migration labs in the world which only target immigrants, it aimed to achieve a "living together" model and formulated a living lab experience for both the immigrants and their local neighbors. Hence, a "Living Together" practice was in need and the "Living Lab" model has the potential to offer a solution to bring together these segregated communities of Syrians and Turks in the same neighborhood.

This study aims at documenting a neighborhood level social innovation experiment for social inclusion and living together model adapted in an ancient migrant city, Izmir in Turkey. As a part of scientific research funded by The Scientific and Technological Research Council of Turkey [TUBITAK], the project is simultaneously ongoing in three ancient migrant cities; Istanbul (project code: 117K826), Izmir (117K805) and Hatay (117K829) abbreviated as Pot-A[2] (Pot of Acculturation).

This study reveals the design and results of the urban living lab model for living together in Izmir, Turkey.

Pots of the Study

Through their history, Istanbul, Izmir, and Hatay have been a shelter for those who seek asylum. The history of all these three cities is filled with stories of migration; all of which accommodate high numbers of Syrian refugees. Hatay is one of the first borders to Turkey from Syria and the Syrian population (433,364 Syrians) has a percentage of 26.92 % of Hatay's total population. On the other hand, Istanbul has the most populated Syrian refugee population with 496,852 Syrians living within the province. Although Izmir has far less Syrian population with (145,576 Syrians) it is still amongst the Top 10 provinces with the dense Syrian refugees as it is a transit city to EU Land, through Greek Islands. This article is meant to narrate Izmir Living Lab Experience.

Figure 1: Pots of the Study[3]

LEGAL LEGISLATION FOR REFUGEES

Turkey is a party to the Geneva Convention in 1951 and signed the protocol in 1967 regarding refugees maintaining a geographical limitation. In Turkey, the term «refugee» is given to those who emigrate from developed countries and geographies such as Europe, since then the geographical condition remains untouched to-day. Thus, Turkey situated another status regarding non-EU citizens. There is a regulation and a status of "Temporary Protection" valid as of 22 October 2014, after the Directorate of Migration Management established in 11 April 2013, 2 years after first asylum seekers from Syria entered the country.[4] Yet, in this study, the people under "Temporary Protection" are referred to as refugees, choosing not to recognize the location limitation.

The «adaptation» issue of refugees in the literature refers to the attitude of different countries and local administrations. In Turkey, Article 96 of the Foreigners International Protection Law No. 6458 regulates adaptation and integration. According to legislation, integration is to ease the mutual adaptation of skills and knowledge to the social life without the need for a third party of both parties whether they be refugees, or citizens, or adaptation to another country they go to, or in case they come back to move freely. The local administration or government entity can arrange activities accordingly.

Adaptation and Integration versus Acculturation

The integration activities by Directorate of Migration Management mostly consist of providing knowledge to refugees about their rights and obligations. The social gathering activities are less and

most of them are carried out by NGOs, associations, foundations of national and international establishments, and most of them are help agencies rather than a motive force for acculturation.

Integration Activities by Institutions

The administrational bodies compound of two levels; the governmental administrative agencies such as Directorate of Migration Management, and the local administration such as Office of Governor, Office of Town Governor, Izmir Metropolitan Municipality as well as the district municipalities. On the other hand, there are different institutions and initiatives such as international aid organizations, local initiatives, foundations, etc.

The main attitude of Directorate of Migration management is on control and security and their contribution to integration activities consists of the distribution of salaries provided by EU funds and debriefing the refugees on their rights and obligations.

Although the policy regarding refugees is determined through national policies, the local administrations have easy access to meet the needs of refugees.[5] Since the local laws don't put limitations for providing urban services to non-Turkish Citizens, civil laws are also valid for refugees who are legally accepted as urban citizens. Municipality carries the necessary practices to preserve cultural values and develop social and cultural relations.[6]

There are also different institutions and initiatives which deal with integration and adaptation of refugees; international aid organizations such as IOM, UNHCR, UNDP, Association for Solidarity with Asylum Seekers and Migrants, The World Bank, etc. and initiatives both in local and national levels such as Kapılar (Gates), Refugees Association, Refugees Solidarity Association, etc. Their main attitude is the most relevant in adaptation and inclusion. They support refugees and asylum seekers in terms of phycological, mental, medical, legal, educational terms and they also engage in social activities for acculturation.

LIVING LAB

The study mainly focusses on a social innovation aiming to build an inclusive city by creating a "Living Together Experience" in the form of Living Lab. Rather than providing services, sharing experiences and togetherness with "our new neighbors" is the priority.

The living lab was formulated twofold.

1. The physical space where people may gather; named ADA (ISLAND),
2. The virtual space where people can interact via social media app, created for Pot-A; named ADAPTÖR, (ADAPTOR)

In this article, rather than the app, the focus is on the physical space and how it came to life.

Background

Living lab is used mainly for technological innovations. It rather signifies research and innovation to formulate a partnership between a systematic user or community to simulate the real-life medium that is user friendly, open innovation approach.[7] Testing services, products, systems between public-private-partnership (PPP) in either physical or virtual space.[8] Instead of a temporary fix, Schurmann[9] suggests an innovative real-life experience in an organized living lab including more than one active partner with different methods. It is based on the collaborative design process of information technologies (IT) through active users.

Although it is based on the design of IT, it grew into different practices. It puts the individual and experiences in the center and creates the experience though the individuals' culture, local context,

creativity, needs, and preferences. Thus, this Living Lab set up is much more in line with Migration Lab experiences. There are three Migration Lab practices to-day.

Initiative		Migration Lab	Immigration Policy Lab	Migrant Integration Lab
Initiative Structure/ Partners		Started as Individual Initiative, joined by NGO, University, Foundation International/ Multinational	Started by Academics, joined by Governmental Administrations, NGO, University Research Offices, Foundations, International/ Multinational	Governmental Administrations, NGO, University, Foundations, International/ Multinational
Area of Interest		. Artistic Expression of Immigrant Problems . Intercultural communication and diversity in schools . Transforming Urban / Public Halls with Immigrants and local people	. Refugees . Unregistered individuals/communities . New citizens/communities	. Sustainable strategies . Flawless communication solutions . Innovative laboratories
Establisment Date		2014 Personal Website 2015 Physical Space	2014	2014
Medium	Virtual Space	http://www.migrationlab.org	https://immigrationlab.org	http://migrantintegrationlab.strikingly.com
	Physical Space	Migrationlab Living Room	Stanford University ETH Zurich	Paris Office
Attributes of Physical Space		Temporary/Movable	Permanent Administration Office	Permanent Administration Office
Context		Locals Refugees Immigrants Tourists	Refugees Unregistered individuals/communities New citizens/communities	New comers Ethnic Minorities and communities Disadvantaged groups (2. and 3. generations, women, children) Jobless-special conditioned

Scale of Practice	Street Neighborhood City (Local, Physical Space)	National/International Guide to policy makers and immigrant communities (Strategic, politic)	Public Space (Local, Physical Space)
Locations of Activities	Amsterdam Rotterdam Vienna Lahey Limerick Bari	Europe America Middle east	Netherlands Italy Greece Romania Germany France Turkey
Project Subject	Project and fund-based activities	Country selection Accessibility to job market Ethnic network Public opinion Social attitude Harmony Community health Citizenship	Emigrant Entrepreneurship Media lab Migrant and low-income artist lab Kitchen lab Craft and art workshops Awareness campaigns

Table 1. Urban living Lab: Migration Labs

Acculturation and Living Lab: POT-A

An integration process is not supposed to be a one-way street where the host community dictates, and the immigrants and refugees receive. It is rather an interaction between the parties; bringing their culture into the pot and make a new batch to form bonds both to space and to the other party.

Our identities are very much related to spaces and cities that we live in. Individuals form bonds with the places that they experience, loading meanings and memories to their environments, thus forming identities through the sense of belonging to space. (…) Immigrants and refugees form bonds as such through the appropriation of space. Sense of belonging has a great impact on the formation of identity. While forming new bonds to the new spaces, immigrants also transform that space simultaneously to prolong their relations to spaces that they had left.[10] Refugees and immigrants are usually densely populated in certain areas in the hosting country. By transforming environments, they reflect their different features from the local community.[1011] This appropriation process is also transforming our cities, thus providing a pot of acculturation.

IZMIR LIVING LAB

From the early days of Smyrna to-day, Basmane is the main entrance point to Izmir. The “Kapılar” district marks the historical entrance to the city. The main train station for national lines is just meters away. Hence, the first comers to Izmir prefer settling in here, because it offers a cheap place to stay for the urban poor, immigrants, and refugees. Via its’ central location, it can also to offer daily working opportunities especially for whom didn’t or couldn’t get legal working permits.

Since Basmane became home for asylum seeking Syrians, they had been dealing with quite a lot. One of them is forming attachment with the city and at their neighborhoods. This detachment from the locals and their neighbors becomes an important psychological issue for the adults.
Moving on with this issue, as mentioned before the migration lab in United States, and Europe, but these are mostly targeted to immigrants only. So, Izmir Living Lab is formulated as a new social innovation for both the immigrants, and their local neighbors altogether to rise a "living together experience" in Konak County which is most densely populated by Syrians.

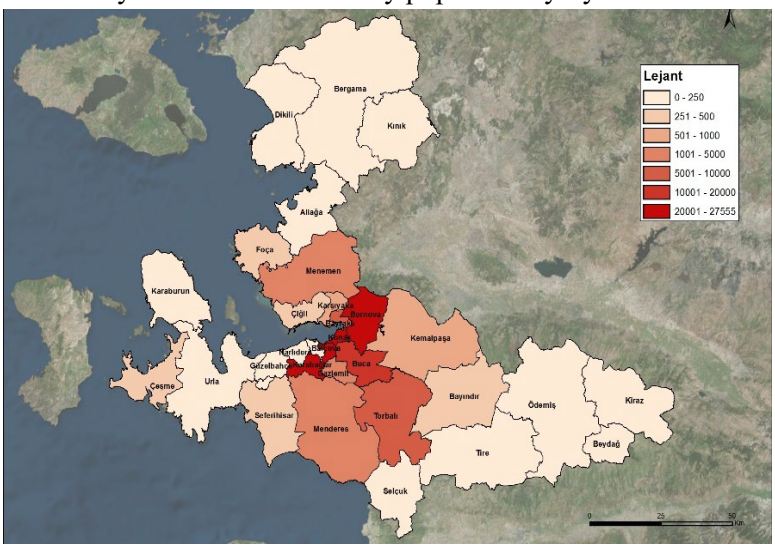

Figure 1: Location of Syrians in Izmir according to Syrian Population Density, 2019[12]

Living Lab Set Up

To achieve a Pot of Acculturation, the living lab experience had to be set up including both parties; Syrians and Turkish citizens. The migration lab experiences (See Table 1) also brought together locals and refugees and/or immigrants. But the period was limited to a single activity.
Throughout the study, surveys with Turkish citizens/locals and in-depth interviews with refugees were conducted in all three cities. In Izmir a total number of 187 surveys and 60 in-depth interviews were conducted. During these interviews, interviewees were asked for being voluntary in İzmir urban living lab experience. The participants of POT-A İzmir are chosen from these volunteers.
After the interviews, a focus group meeting was held including governmental administrative representatives, municipality representatives, national and international initiatives, UN parties, and professional organizations.
During field survey and focus group meeting, all stakeholders are asked for design and programme of İzmir Living Lab, which later became input for the design of POT-A Izmir Urban Living Lab.

Ada (Island) and Design of Izmir Pot-A

For the actual physical space "Ada", the data from the on-site study, pointed a space within the neighborhood. It had to be close-by so that volunteers could participate without paying for transportation and commuting time. An Office of Izmir Metropolitan Municipality which is dedicated to historical and environmental preservation on site was dedicated to Pot-A through protocols.
The design of urban living lab to complete a pre-defined but flexible programme with predefined Turkish and Syrian participants caused some difficulties and constraints during the process. All volunteers did not attend actual programme for several reasons: racial prejudices against Syrians, seeing "integration" as a single-track problem of refugees, difficulty of continuous participation during

ten weeks, seeking for childcare during activities of living lab and so on. Also, some of the refugees left Turkey and took sanctuary in Europe during the period.
The first dissemination and communication activity of urban living lab experience was to prepare brochures and information material in four languages: Turkish, Arabic, Persian and English.

Figure 2: Brochures and Posters of Pot-A (Collective)

The programme is composed of different activities and communication between Turkish and Syrian participants are realized through project personnel, who is also a researcher and a psychologist.
Programme design is composed of three main activity categories: (i) Cultural Inclusion, (ii) Capacity Building and Talent Inclusion and (iii) Urban Inclusion. For achieving these aims, the workshops and ateliers are designated for co-production and co-learning.

Atelier		Date	Place
1	a. Introduction to Project and Acquaintance with each other b. Presenting of Local Seeds	22.09.2019	Izmir History Design Atelier
2	a. Mapping Immigration Stories Atelier b. Mini Concert	29.09.2019	Izmir History Design Atelier
3	Izmir Bay Trip and City Atelier	13.10.2019	Izmir Bay Trip with Boat
4	Rights and Law Atelier	20.10.2019	Izmir History Design Atelier
5	a. Kite Making and Kite Running Carnival and Picnic b. İnciraltı City Forest Environmental Values and Discussion	3.11.2019	İnciraltı City Forest and Fisher Trip
6	Script writing and Creative Drama Atelier	10.11.2019	Izmir History Design Atelier
7	Entrepreneurial Capacity Atelier	17.11.2019	Izmir History Design Atelier
8	Design Atelier	1.12.2019	Izmir History Design Atelier
9	Kitchen Atelier	8.12.2019	Izmir Metropolitan Municipality Profession Factory
10	Museum Trip	15.12.2019	Agora-Smyrna/ Izmir Museum

Table 2. Izmir Pot-A Activities and Workshops

At the first Living Lab, the Schedule and Programme were explained to the participants in detail and a release form was distributed in Turkish and Persian. They were encouraged to take the forms with them in case they want to examine the document in detail.

The participants were also encouraged to attend all the Living Lab activities as much as possible, since "being together" is a step in "living together".

The activities were held with the help of volunteered facilitators according to the theme of the activities. The first two activities were to ease and form acquaintances between participants through fun games and interaction, and of participants' backgrounds as a reminder of our migration stories, hence each participant is here, together for days to come; forming bonds to each other and to the place.

Here are some quotes and memoir from Izmir Pot-A;

"A Fresh Breath of Air" (Syrian refugee).

"At first, I was hesitant to participate these kinds of activities, but today made a huge difference. It made me very happy" (Turkish citizen).

"I never imagined having fun with strangers" (Syrian refugee).
"We couldn't imagine that everyone came from all of these different places" (Syrian Refugee)
"I understand one thing only; nobody belongs to a specific place; you belong to where you live at the moment" (Turkish citizen).
"After coming to a couple of family integrated activities, my mother, who is very prejudiced against Syrians started defending them against my father" (Turkish citizen)

Figure 3: Mapping Immigration Stories Atelier

Figure 4: Design Atelier with Fırat Neziroğlu

CONCLUSION

Although the Living Lab only took about three consecutive months, it provided vast information for social innovation. Grant all this, the social innovation process is a long run, needing a wider participant pool. This study only offers a testbed to further studies.
There are several services and studies for refugees but forming a social innovation for "Living Together" and including both so-called host and guest parties is what makes this study differ from the others since the former offer those services solely to one party at a time.
To overcome the separation between two parties, Living Lab provides a solid practice by organized concept and aims and continuity in bringing the same people together over and over, helping to overcome prejudices and creating a safe environment where they can communicate through collaborative activities which turns into a Pot of Acculturation; "I understood the importance of such places and how needed they are" (Turkish citizen).

NOTES

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TRANSFORMING THE PMESII FRAMEWORK TO CAPTURE THE FUNCTIONAL COMPLEXITIES OF URBAN AREAS

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INTRODUCTION

Cities are purposeful, open, complex, and emergent, systems, and, as such, it can be difficult to represent and understand their dynamics in decision-making processes. This general challenge is even more problematic when assessing cities under stress and in times of crisis when efforts to improve conditions may result in unintended undesirable second- and third-order effects. One approach is offered by the United States military's six-variable Political, Military, Economic, Social, Infrastructure, Information (PMESII) framework, which is used to characterize environments in which it operates. As initially developed and conventionally used, each variable category provides a description of the structural features an area. While there can be – and perhaps often is – implicit recognition of connections between categories, there is no explicit method or guidance to consider what are often important system interrelationships. Such connections that can be especially important in complex urban systems under stress. This paper presents research undertaken in the context of the NATO Urbanization Project. The aim was to enable and improve abilities to understand existing conditions and anticipate potential consequences of change. The work: (1) redefines the six primary PMESII variables from asking structural (or 'What…?') questions to asking functional (or 'How…?') questions and (2) introduces secondary 'How' questions for each of the fifteen pairwise relationship between the six primary variables. The revised framework is applied on a set of case studies of major cities to identify interdependent vulnerabilities and critical uncertainties. Additional applications include exercises to reveal topical areas for stakeholder negotiations on crisis response and the identification of quantitative indicators to test hypotheses about changing system behaviors through computational analysis.

CITIES, CHANGE, AND UNCERTAINTY

The idea that cities are transformed over time as new ways to meet collective goals are imagined, tried, and tested is not new,[1] but the need to understand the dynamics of change is ever increasingly important as patterns of urbanization have expanded and intensified. In 2007, for the first time, more human beings lived in cities than in rural areas.[2] Looking forward, it is projected that by 2050 over 65% of the global population will live in urban areas[3] and that by the end of the 21st century up to 80% of the world's 9–11 billion people will be city dwellers.[4] In extreme instances, new megacities of over 10 million inhabitants and mega-regions of over 50 million will emerge.[5] Some of these

immense settlements, will be the result of national planning efforts, but most will emerge as economic migrants from rural areas seek opportunities in the informal economies that operate at the fringes of large densely inhabited areas.[6] The growth of these cities will be uneven, with most occurring along coastal areas and in developing countries within Africa, Asia, and South America.[7] More than simple population redistributions, the potential consequence of such shifts of people may include the emergence of metropolitan-scale economic zones,[8] new governmental priorities within nation states[9] and the reordering of global political influence by networks of cities.[10] On the one hand, these conditions may allow for the appearance of novel ways to improve health, safety, and welfare. On the other hand, there is the potential for the weakening of societal capacities to meet these needs.[11]

This paper presents the re-working of a conceptual framework for considering the ways cities support civic functions over their continuous re-organisations. The work is motivated by not only by the prevailing processes of urbanization around the world, but by the need to understand uncertainties that affect the making of policies, plans, and designs. These include normative ambiguities at the root of contested social goals,[12] epistemological limits of precision or accuracy within competing methods of analysis and the effectiveness of socio-technical approaches to address risk,[13] and ontological unpredictability that comes with the recognition of unknown unknowns.[14] Moreover, exposure to these kinds of uncertainties and their potential consequences evolve as solutions to problems are implemented. That is, societies meet their present needs by binding social and bio-physical relationships in time and in space,[15] but by doing so create new forms of risk that may be exposed in the future.[16] Also, although individual actions might appear to produce only isolated and marginal effects, the changes are cumulative and may lead to complex crises. Examples of the construction and consequences of such risks can be found in Scott's *Seeing Like a State: How Certain Schemes to Improve the Human Condition have Failed*[17] and Diamonds, *Collapse: How Societies Choose to Fail or Succeed*.[18]

Of particular concern in decision making processes during periods of rapid change are so-called 'critical uncertainties,' which are those issues that are both the most difficult to predict and may result the greatest disruption or harm.[19] Critical uncertainties related to fundamental societal needs can become the rationale for securitization efforts. Security has been called a 'thick public good' that supports democratic society,[20] and arguments to protect survival can appear uncontroversial. Nevertheless, it is also true that escalating an issue to be a security concern removes it from routine political debate where negotiations are possible. It also allows for extraordinary actions, including actions that would not ordinarily be allowed or sanctioned.[21] An additional complication is that increasing the security of one concern may decrease the security of others.[22]

What appears to be a critical concern and what rises to the to the level of a security matter changes as the organization of a society and its context co-evolve. The most common security referent (that is, the thing that is to be secured) has been and remains the nation state, which is addressed through the notion of national security. However, since the end of the Cold War other referents have been identified and there is now discourse on environmental security, energy security, water security, food security, and human security. Urban security – the security of cities – has also been receiving attention from defense ministries and agencies,[23] non-governmental organizations,[24] and academic disciplines.[25] Cynically, the expanding array of security referents might be understood as a result of having so many special interest groups learn how to use inflated rhetoric as a means to attract attention, authority, and funding. Not cynically, and argued here, this situation, instead, reflects increased realization that societal goals are not only interconnected, but interdependent. Such an awareness comes about when security analysis is broadened from its conventionally narrow attention

on external threats to include internal vulnerabilities.[26] In brief, threat and vulnerability analyses are complementary: a focus on threats examines how a specific harm might degrade or destroy various systems; a focus on vulnerabilities examines how the composition and configuration of a specific system might be degraded or destroyed by various harms. Identifying and assessing vulnerabilities requires understanding how a given system is, itself, supported by or even reliant on other systems. Second- and third-order effects of disturbances of these systems become more evident and, as such, underlying uncertainties – which will range from manageable uncertainties to critical uncertainties – come to be understood as patterns of interdependent concerns.

CITIES AS SYSTEMS AND SYSTEMS AS RESPONSES TO QUESTIONS

Writing in the early 1960s, Jane Jacobs was perhaps the give widespread attention to the idea that cities display 'organized complexity … replete with unexamined, but obviously intricately, and surely understandable, relationships.'[27] Since then, there has been consistent effort by researchers across several disciplines including urban planning, geography, economics, ecology, and – most recently – physics to improve the understanding of this complexity in terms of systems.[28] City systems have several qualities: they are created to satisfy societal goals, so are purposeful; the behaviour of the whole cannot be reduced to the behaviour of individual elements, so they are emergent; individual elements have many relationships with other elements, so they are complex; they exchange energy, materials, and information with their context, so are open; and, they can modify their internal structures or functions in response to external change, so are self-organizing. Research on these qualities provides ways to analyse processes of urbanization, and, to the degree that the methods produce accurate and precise results, can inform urban policy, planning, and design.[29]

A framework to characterize the complexity of the built environments used commonly by Western militaries employs six primary variable categories: Political, Military, Economic, Social, Infrastructure, and Information (PMESII). Some implementations expand the framework to include Physical Terrain and Time (PMESII-PT). It was originally developed by the United States Army as a way to identify relevant systems in an operational environment at the geopolitical unit of the nation state. It has been subsequently expanded to understand environments writ large,[30] including urban environments.[31] Standard definitions of the variables are given in Table 1.

Variable	Defining Issue(s)
Political (P)	Describes the distribution of responsibility and power at all levels of governance
Military (M)	Explores the military and/or paramilitary capabilities of all relevant actors (enemy, friendly, and neutral) in a selected operational environment.
Economic (E)	Encompasses individual and group behaviors related to producing, distributing, and consuming resources
Social (S)	Describes the cultural, religious, and ethnic composition
Infrastructure (Infra)	Portrays the basic facilities, services, and installations needed for the functioning of a community or society
Information (Info)	Depicts the nature, scope, and effects of individuals, organizations, and systems that collect, process, disseminate, or act on information

Table 1: Conventional definitions of PMESII variables. (Source: US Army, Training Circular 7-102: Operational Environment and Army Learning (Washington, DC: Department of the Army, 2014))

One criticism of the PMESII framework is that it focuses attention on static descriptions or 'What…?' questions and, therefore, while it can provide an inventory of structural features, it does not necessarily lead to more fundamental insights about 'Why...?' an environment is organized as it is or 'How…? goals are achieved. An additional concern is that while relationships of elements within each of the six variable categories and between (or among) categories are assumed, neither formal methods nor heuristic guidance to identify them are offered in the literature.[32] This lack means that successful implementation depends on the prior knowledge of the analyst. It may also contribute to the isolation of features from their context (sometimes called data *stovepiping*).[33] Despite these concerns, the PMESII framework is widely known and frequently used. Rather than replace it, modifying to be allow for deeper consideration of urban systems, including interrelationships between and among the six variables may lead to better analysis.

The fundamental question, 'Why do cities exist?' may not have a definitive answer, but well-argued positions have included opportunities for trade, collective defence, and needs for social interaction.[34] These and other possibilities might be generally subsumed under the notion of providing opportunities to overcome the limitations of individuals. As a thesis to capture a range of opinions for this paper: 'The purpose of cities is to allow strangers to live peaceably and productively among each other.' If this assumption is the purpose of a city, how is it achieved? Table 2 presents a revision to the conventional definitions of the PMESII variables as, 'How…?' questions.

Variable	Defining Question
Political (P)	How is a member (typically a citizen) identified, what rights pertain to a member, and how do these rights differ from non-members?
Military (M) [Police]	How are security issues defined, declared, engaged, and resolved?
Economic (E)	How do people exchange goods and services?
Social (S)	How do individuals and groups behave and why do they do what they do?
Infrastructure (Infra)	How are flows – of people, food, water, goods, power – coordinated throughout the city?
Information (Info)	How is truth recognized?

Table 2: Alternative definitions of PMESII variables to reflect functional, rather than structural considerations. (Source: A.W. Shearer)

These questions about how a city functions are offered provisionally and, importantly, are based on what can be considered a generalist approach to issues that are discussed across geography, urban studies, urban planning and design, and related fields. This position warrants comment. Toward having inclusive and expansive discussions about cities, it is beneficial to begin with questions that are common (or at least not uncommon) across disciplines. There is the intent to pose questions that are sufficiently open that answers can include a great variety and wide variability of elements. It also allows for the consideration of alternative theories about cause and effect relationships that might serve as the basis for any 'How…?' answer. Admittedly, this loose framing may make the application of the framework subject to criticisms that it is inconsistent or arbitrary. The position taken here is that the flexibility is needed, since, if a city is a self-organizing system, then any approach to understanding it must be sufficiently open to accommodate the introduction of unique or unprecedented elements and relationships.

It was noted previously that some implementations of the PMESII framework expand the six primary variables to include Physical Terrain and Time. These additions are not used in this revision, because answering each 'How…?' question involves binding (even if temporarily) contingent system elements in space and in time. Further, it can be expected that these relationships are very specific, if not unique, in each answer. It might also be expected that different activities contributing to the same, 'How…?' question occur at different distances across space and rates of time within a given urban environment.

Another note on the application of the PMESII framework to cities as opposed to nation states concerns differences in the provision of safety and security. Municipalities are expected to provide these protections through police forces that report to mayors or city councils. Additional police forces organized at provincial or national governments might also be deployed within a city. While some of these forces have capabilities that approach those of national armies, they are, nevertheless, civilian by custom and by law. And if military units are called upon to assist in times of crisis, they typically operate under limited rules of engagement that are far more restrictive than allowed during war. Given these considerations, it could make sense to change the 'M' in PMESII to second 'P' for police when undertaking urban analysis. It is retained in this paper for convention and to not further double letters in the acronym. It is acknowledged, though, that the Military variable needs to be understood as relating to police and other first responders.

When answering these questions about a specific city, the provincial, national, regional, and global contexts of each variable may also need to be considered. Many aspects a city will align with the norms and rules of its surrounding territory, but others may differ. For example, special economic zones (SEZs), such as Shenzhen, often operate under different trade and employment rules than other cities in the same home nations.[35] Because cities are the landing places for most migrants, urban areas may have greater ethnic diversity than surrounding territories and have large ethnic enclaves.[36] Other contextual factors may not spatially contiguous. For example, so-called 'global cities', such as London, New York, and London, are worldwide hubs for the flow of finance and information and may affect or be effected by international events and trends more than by metropolitan area occurrences.[37] Recasting the prompts used inventory, characterize, and relate features within each of the six PMESII variables is followed by an explicit consideration of interactions between the variables. Doing so contributes to identifying interdependencies within the larger system. That is, it aids to understanding of the image of the city as a system-of-systems.[38] It also provides a way to stimulate consideration of second-order (and perhaps third- and fourth-order) effects of changes to the city. Figure 1 provides a diagram of these interactions. Tables 3–8 restate the base "How…?' question for each variable and provide questions to guide the description of relationships with the other variables.

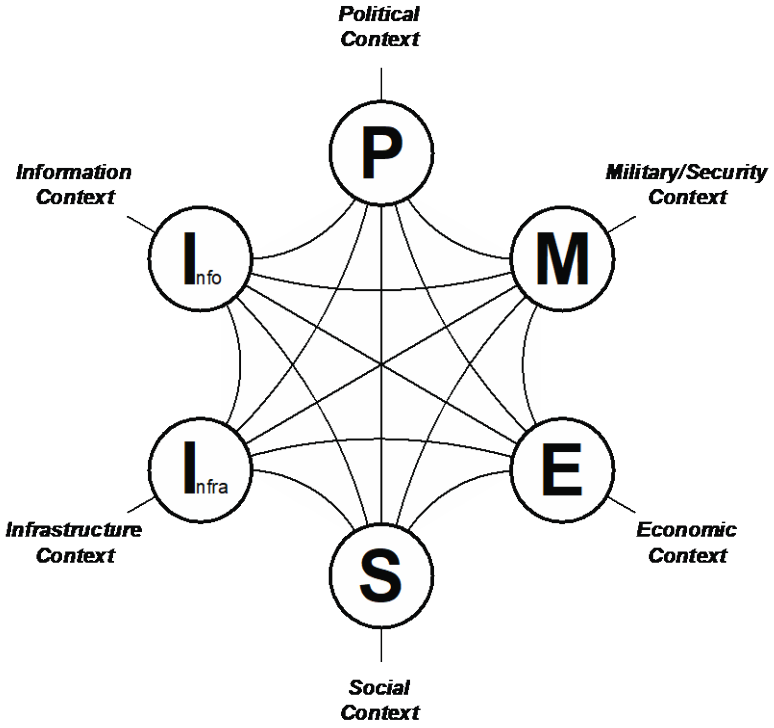

Figure 1: Interaction of PMESII Variables
(Source: A.W. Shearer)

Variable Interactions	Defining Question
P	How is a member (typically a citizen) identified, what rights pertain to a member, and how do these rights differ from non-members?
P – M	How laws over a population administered and enforced?
P – E	How are regimes of resource distribution structured?
P – S	How is social order legitimized?
P – Infra	How does the state (or city) establish conduits and protocols to direct flows?
P – Info	What counts (that is, numerically matters) and how are counting (inventory systems constructed and used?

Table 3: Interactions with Political variables. (Source: A.W. Shearer)

Variable Interactions	Defining Question
M – P	How laws over a population administered and enforced?
M	How are security issues defined, declared, engaged, and resolved?
M – E	How are technologies for war and peace prioritized and changed from one to the other?
M – S	How do the institutions respectively associated with the "two hands on the sword" influence one another?
M – Infra	How is force expanded, extended, and delivered?
M – Info	How is situational awareness sensed and made sense of?

Table 4: Interactions with Military (general security) variables. (Source: A.W. Shearer)

Variable Interactions	Defining Question
E – P	How are regimes of resource distribution structured?
E – M	How are technologies for war and peace prioritized and changed from one to the other?
E	How do people exchange goods and services?
E – S	How do (social) interests get costed or priced?
E – Infra	How are general, basic services made sharable for specialized production and trade?
E – Info	How are opportunities for exchange revealed?

Table 5: Interactions with Economic variables. (Source: A.W. Shearer)

Variable Interactions	Defining Question
S – P	*How is social order legitimized?*
S – M	How do the institutions respectively associated with the "two hands on the sword" influence one another?
S – E	How do (social) interests get costed or priced?
S	How do individuals and groups behave and why do they do what they do?
S – Infra	How do people extend their reach and expand their effect?
S – Info	How do people share individual perceptions (facts and opinions, aspirations and fears) with one another and how do they make collectively shared perceptions?

Table 6: Interactions with Social variables, (Source: A.W. Shearer).

Variable Interactions	Defining Question
Infra – P	How does the state (or city) establish conduits and protocols to direct flows?
Infra – M	How is force expanded, extended, and delivered?
Infra – E	How are general, basic services made sharable for specialized production and trade?
Infra – S	How do people extend their reach and expand their effect?
Infra	How are flows – of people, food, water, goods, power – coordinated throughout the city?
Infra – Info	How are flows measured, managed, integrated (or separated), and synchronized?

Table 7: Interactions with Infrastructure variables. (Source: A.W. Shearer)

Variable Interactions	Defining Question
Info – P	What counts (that is, numerically matters) and how are counting (inventory systems constructed and used?
Info – M	How is situational awareness sensed and made sense of?
Info – E	How are opportunities for exchange revealed?
Info – S	How do people share individual perceptions (facts and opinions, aspirations and fears) with one another and how do they make collectively shared perceptions?
Info – Infra	How are flows measured, managed, integrated (or separated), and synchronized?
Info	How is truth recognized?

Table 8: Interactions with Information variables. (Source: A.W. Shearer)

FUNCTIONAL PMESII FRAMEWORK APPLIED TO IDENTIFY MID- TO LONG-TERM CRITICAL UNCERTAINTIES OF URBAN AREAS

This revision of the PMESII framework to emphasize functional relationships was initially undertaken to support the NATO Urbanisation Project, a multi-national effort that included participation of subject matter experts from government agencies, non-governmental organizations, academia, and industry in addition to the militaries of member nations. It was initiated on the assumption that because most of the world's population lived in urban areas, it was increasingly likely that future military activities – ranging from crisis management and disaster response to stability policing to counterterrorism to warfighting – would take place in cities. It was also recognized that cities in the future would be different than cities today due to the expected effects of climate change, trends in economic globalization, the pace of technological change, and possible of mass migrations. The general task was to develop methods to understand these transformed environments and concepts that would contribute to successful operations.

As part of the larger Urbanisation Project, ten cities from around the world were analysed to consider dynamics of change. Special attention was given to vulnerabilities and uncertainties that could have harmful impacts on relative stability over the next twenty to twenty-five years.[39] The cities were selected to span a range of readily observable features including geographic location, population size, and economic characteristics (levels of economic development, industrialization, and wealth). The selected cities were Basra, Caracas, Delhi, Johannesburg, Kinshasa, London, St. Louis, St. Petersburg, Shenzhen, and Tripoli. The revised PMESII framework was used to structure literature reviews on the issues discussed in each city over the previous five years, a time span that was considered as a 'long present.' Government documents, academic papers, reports from organizations and professional consultancies, and articles printed in news outlets were included in the reviews. Contents of the texts were qualified in terms of the topics they addressed and an understanding of each city's strengths, weaknesses, opportunities, or threats (SWOT analysis[40]). Given the emphasis of the investigation on potential harms to stability, special attention was given to issues perceived as volatile due to high epistemological uncertainty about the links between causes and effects and normative uncertainty about differing opinions on viable solutions.

Several limitations of this investigation are acknowledged. Notably, sources were limited to materials available on the internet and discoverable through English language searches. Correspondingly, the vast majority of texts reviewed were in English. Also, it was not possible to fully vet the reliability or neutrality of every author. The pursuit of multiple sources and corroborating evidence on any given issue mitigated this concern but doing so meant the possibility that important minority opinions views were discounted. It must also be recognized that this investigation was qualitative. There were no objective measures or quantifiable thresholds of volatility facing the cities. Instead, the assessments were based on holistic interpretations of observations, analyses, and arguments made by others.

Table 9 provides the total number of times each of the paired combinations of the six primary variables were identified as a topic of significant uncertainty and volatility across the ten case study cities. The column and row combinations are symmetric. For example, the Political – Social (P – S) cell and the Social – Political (S – P) cell are the same, both show two instances. The total number of times each of the six primary variables are used in any combination are given in the bottom row. Figure 2 provides a graphic summary of the pairwise combinations identified for each city. The highlighted arcs between PMESII variables indicate perceived significant uncertainty and volatility of topics.

Variables	P	M	E	S	Infra	Info
Political (P)	---	3	7	2	2	1
Military (M)	3	---	2	1	0	0
Economic (E)	7	2	---	7	7	1
Social (S)	2	1	7	---	3	0
Infrastructure (Infra)	2	0	7	3	---	0
Information (Info)	1	0	1	0	0	---
Primary Variable Totals	15	6	24	12	12	2

Table 9: Total number of pairwise interactions identified as having significant uncertainty and volatility across the ten case study cities. (Source: A.W. Shearer)

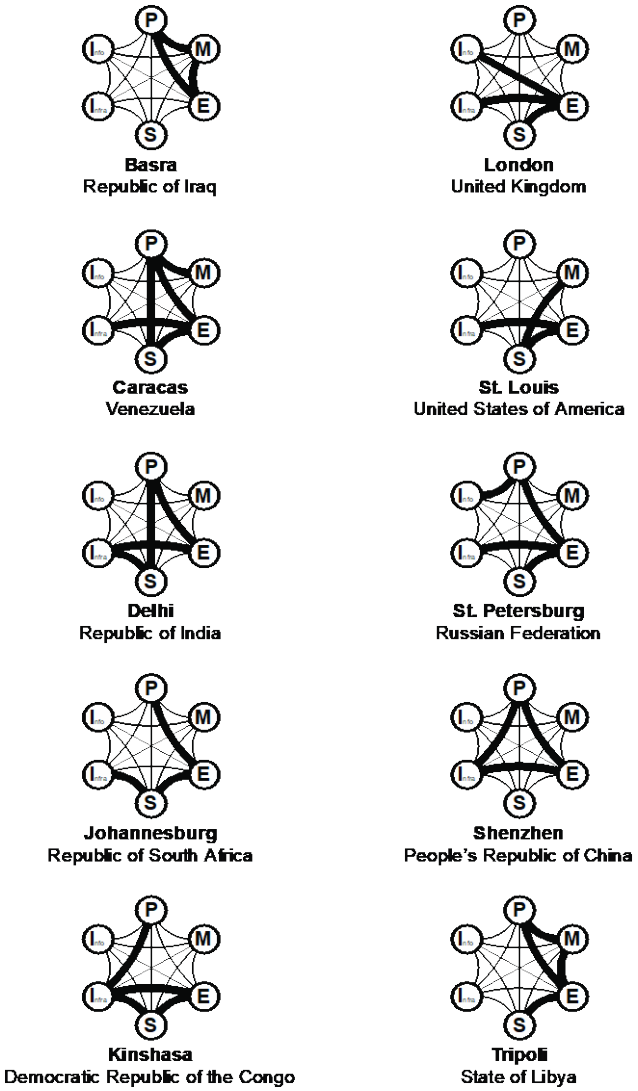

Figure 2: Comparison of case studies based on critical issues facing each city. (Source: A.W. Shearer, S. Tabory, T. Hilde)

The case study cities were selected to provide diversity based on readily identifiable objective measures. The literature review and functional PMESII assessment indicate there is also a diversity of unsettled issues that may influence the future of each. No two cities were assessed as having the same

overall pattern of volatile issues, although some cities had one or more topics of volatility in common with others. Another indicator of diversity is that twelve of the fifteen pairwise variable interactions were found to be significant in at least one city. There was no apparent correlation between the objective measures (geography, population size, wealth, etc.) and the identified areas of uncertainty.

Given the emphasis given by many urban theorists and historians on the role of the city as a place for economic exchange, it is, perhaps, expected the Economics variable, 'How do people exchange goods and services?' is most frequently paired in the identification of topics of volatility. It is paired with three of the other variables seven times each: paired with Political, 'How are regimes of resource distribution structured?' (Basra, Caracas, Delhi, Johannesburg, St. Petersburg, Shenzhen, and Tripoli); paired with Social, 'How do (social) interests get costed or priced?' (Caracas, Johannesburg, Kinshasa, London, St. Louis, St. Petersburg, Tripoli); and, paired with Infrastructure, 'How are general, basic services made sharable for specialized production and trade?' (Caracas, Delhi, Kinshasa, London, St. Louis, St. Petersburg, Shenzhen). No other pairings across the PMESSI spectrum occur more than three times.

These results point toward several lines for follow-up inquiry with regard to understanding the ways or degrees to which cities can be comparable with respect to the underlying uncertainties and dynamics of change. For example, the identification of so much volatility associated with the Economic variable across such different cities might be taken as an indicator of global uncertainty. But, how could more be said about the similarities and differences of the situations for each city? One approach would be to consider a common source of volatility, say the Politics – Economics link, and trace the other identified connections to the primary Politics and Economics variables. Doing so could help provide an understanding of the ways other issues drive and are driven by uncertainties about resource regimes. Also, referring to the point made earlier in this paper that revised PMESII framework is neutral with regard to theories that might support answers to any, 'How…?' question, alternative schools of thought might be compared. With regard to the Politics – Economics question, competing theories for the study of political economy include Marxist, neo-classical, and neo-Weberian. Toward understanding the dynamics of debate within a city, it would be possible to categorize the basis of perceptions and arguments of the various source materials considered relative to such schools. Perhaps, with enough case studies, it might be possible to identify which school or schools of theory best describe certain kinds of cities (such as cities of a certain size or with a certain kind of municipal governments).

Three interactions connected to Information where not identified at all in the case studies: Military [police and first responders] – Information, 'How is situational awareness sensed and made sense of?; Social – Information, 'How do people share individual perceptions (facts and opinions, aspirations and fears) with one another and how do they make collectively shared perceptions?'; and Infrastructure – Information, How are flows measured, managed, integrated (or separated), and synchronized'. Given the inclusion of twelve of the fifteen indicators across the set, this lack also warrants follow-up investigation. It is possible that the omissions are due to the sample of cities included in this investigation. Or, perhaps the populations of the case study cities as a whole and decision makers view their ability to get reliable information to be stable and secure. Notably, the data was collected at the start of the NATO Urbanization Project and only since then have headlines about 'fake news' become as prevalent as they are today.[41] Speculatively, attention to the Infrastructure – Information connection might become perceived as more important and more uncertain as more objects share data over the Internet of Things (IoT).

Also of interest in the results are apparent volatilities captured in closed polygons. For example, Basra has a closed shape with Politics-Military-Economics and Shenzhen has a closed shape with Politics-Economics-Infrastructure. And because the order of the PMESII variables is apparently arbitrary, the Politics-Economics-Social-Infrastructure shape of Delhi should be included. While the framework assumes all variables are inherently interrelated, the circular or, perhaps, recursive nature of the highlighted patterns may suggest a high degree of entangled issues. Finding resolutions that overcome the perceived uncertainties may be particularly difficult. These closed shapes might contribute to a classification system or typology of 'wicked problems.'[42] Given a sufficient number of case studies and the observation of the same closed patterns, these cities might become their own topic for investigation.

A final comment on the application of the revised PMESII framework to identify mid- to long-term critical uncertainties in the ten case studies is that while it is possible to note common perceptions about sources of volatility across the cities as indicators about the general pervasiveness of concerns, it is not possible to compare the potential impacts of volatility, because each urban area is differs by governmental effectiveness, economic means, capacity to provide services, and capabilities to establish security. For example, in both Kinshasa and London, there is perceived volatility in the Economic – Social question, 'How do (social) interests get costed or priced?' and the Economic – Infrastructure question, 'How are general, basic services made sharable for specialized production and trade?' Differences between the two cities with regard to population size, gross domestic product, and existing infrastructure (among other differences) limit the value of direct comparisons and options to reduce volatility in these topics will be unique to each city.

FUNCTIONAL PMESII FRAMEWORK APPLIED TO MAP STAKEHOLDER DYNAMICS IN A NOVEL CRISIS

A second application of the revised PMESII framework has been used in a roleplaying exercise to characterize the priorities of stakeholders. This work is described in detail in another article.[43] In brief, whereas the application of the revised PMESII framework described above considered discussions of uncertainties over a 'thick present' to identify issues that might lead to instability in mid- to long-range futures, this roleplaying application focuses on uncertainties in an 'immediate present' and short-term futures. It follows a line of studies done on regional geopolitical dynamics in the mid-1960s – unrelated, but contemporary to Jane Jacobs work on cities. Amid concerns that initially small crises could spread quickly through domino effects and upset the balance of power across the globe,[44] one analyst considered how to imagine the formation of national aims when an unprecedented regional event occurs and none of the surrounding nation states have stated policies on the underlying issues or how they would hypothetically react.[45] The approach that was suggested was to treat each individual nation as a set of ministries and institutions that each have their own agendas and to then simulate or gameplay their negotiated interactions to tease out potential national-level stances.

This general idea was applied to explore how key stakeholders in the fictional city of Archaria might respond during a crises when norms of civil order might be in flux – who might form allegiances, who might exploit the situation for gain and how, etc.? Archaria was created for the NATO Urbanisation Project as a platform to consider operations in dense urban environments. It is represented through a background scenario that describes the city in terms of the conventional (structural) PMESII framework and a GIS model. Participants provided with this information and were assigned roles of stakeholders, which were described in one-page biographies. Prior to roleplaying, each participant was asked use the background materials and identify their character's two most important revised (functional) PMESII interaction questions . In Figure 3, each oval contains the name of a stakeholder

character, his or her primary motive, relationships to other stakeholders, and the two most important PMESII relationships as identified by each participant shown as a thickened line. A dashed lines indicate awareness or close following of the actions of another stakeholder, but no direct contact. Rectangular boxes on the lines call out the PMESII primary variables shared by the stakeholders.

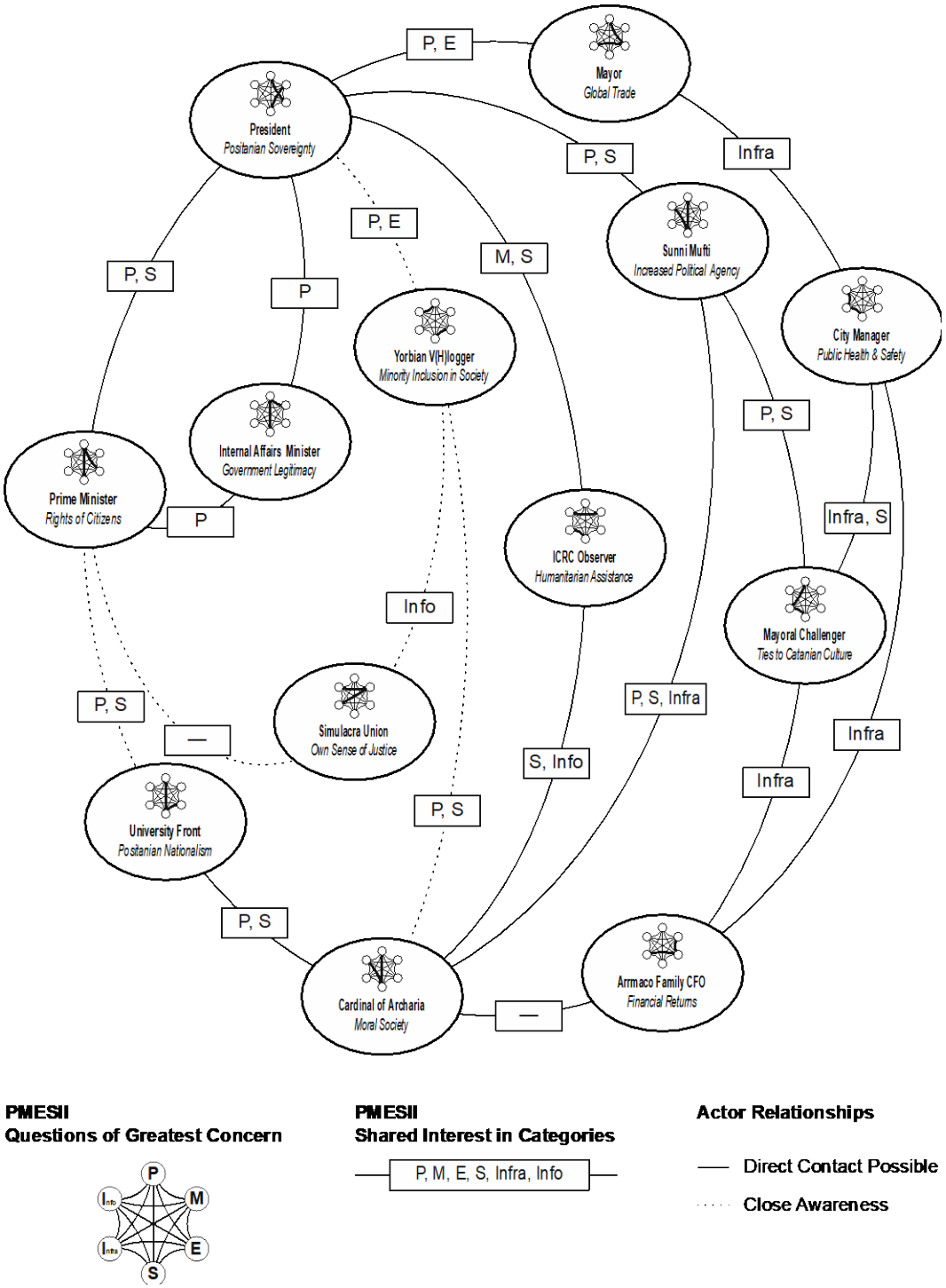

Figure 3: Shared interests in variables of stakeholders in the Archaria crisis game. (Source: A.W. Shearer)

Done before gameplay, the activity required participants to reflect on the materials and to take some responsibility for defining their respective characters. As a set, the responses provided a awareness of topical affinities a the level of primary variables that could be explored for collaboration or conflict during the live exercise. In most instances mutual interest in a primary variable had to be resolved through differing questions on linkages. For example, Social – Infrastructure question was common to the City Manager and Mayoral Challenger, but their other respective interests pivoted on the primary variable of Infrastructure. Although not formally pursued in this exercise, close examination of these pivots could be a way to refine the essential elements and relationships in the primary variables.

CONCLUSION

No map should be taken for the territory it represents.[46] Given complexity of urban systems, this maxim is especially valuable when interpreting the description of a city. Nevertheless, methods to assemble data, produce information, and share knowledge about built environments are needed to take actions that can improve the conditions that allow strangers to live peaceably and productively among each other. These methods should also aid in identifying any harmful indirect effects that might follow from any actions taken to modify the system. The revision of the PMESII framework described in this paper explicitly accepts the assumption that cities are purposeful systems, created as populations attempt to solve societal problems. It recasts the definition of the six primary variables from inventories of structural features to explanations about how functional purposes are met. The additional explicit specification of questions about how the primary variables are related to each other contributes to understanding interrelationships of goals. In application, by asking, 'How…?', there is the acknowledgement that the approaches or means to solve societal problems are not universal. The revision also highlights attention on relationships between and among variables, rather than the variables themselves.

The preliminary uses of the revised framework demonstrate that it can be used capture some of the dynamic aspects of city systems. The comparison of the ten case studies characterized varying city-wide topics of volatility that would shape the coming twenty to twenty-five years. The roleplaying exercise characterized predispositions and perceptions about what is important within a city to key stakeholders. Still, as a new adaptation of an established framework, more work is needed to test the robustness of the revision. Doing so includes testing the aptness of each 'How…?' question on a larger number of cities. Using archives of a city may allow for the examination of how patterns of perceived problems and activity to address them shift over time.

A final word should be given on the use of the revised framework to consider security in and of urban areas. Although uncertainty typically carries a negative connotation, it is not necessarily unwelcome, since it allows the future to be open. Uncertainty becomes problematic when it is coupled with vulnerability. When extreme uncertainty and extreme vulnerability are combined – that is, when there is existential threat – there is the need to call for security measures. New pairings of vulnerability and uncertainty arise when the context of an open system changes. The greater or the faster the change, the greater the stress; and the greater the stress, the more likely it will escalate to a security matter and demand extraordinary action. Importantly, there are instances in which societies have identified and adopted policies to manage dangerous situations. By reorganisation of the system, new relationships between vulnerability and uncertainty are established and would-be security matters are de-escalated to more routine and more manageable safety concerns. A mundane example is the traffic light, which allows vehicles and pedestrians to negotiate roadway intersections without expected harm. As we think about the futures of cities as purposeful, emergent, complex, open, and self-organising systems,

it is possible to make the argument that more attention should be given to identify critical uncertainties and approaches to decrease stress in order to decrease the likelihood that crises will occur.

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A STUDY OF THE USE OF DIGITAL MEDIA IN VIETNAMESE POLITICAL DISSENTS: FROM CYBERACTIVISM TO PHYSICAL ACTION

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INTRODUCTION

In recent years, disadvantages arising from of interactions made in online discussions have been debated by Deryakulu and Olkun (2007)[1] or Triebl[2] (2015). However, the effectiveness of this type of engagement has been widely studied in different areas by others, from education[3] to healthcare[4]. The development of digital media in Vietnam promises the possibility of having a virtual public space. It enables people to connect, communicate and share their opinions on political issues with each other despite geographical distance. News media could potentialy give Vietnamese speaking people more opportunities to express their views in online public discussions over political concerns. Vietnamese-speakers have been using online social networking sites to discuss and/or express their opinions over governance and political concerns in greater numbers since the launch of the Yahoo360 blog platform in Vietnam in 2005[5]. Online interactions in three chosen cases strongly indicate that Vietnamese are increasingly engaging in online discussions about political matters on Facebook. Online activities have also spurred political activism in the physical sphere. Street demonstrations organised or publicised online have attracted large numbers of participants.

A SUMMARY OF METHODOLOGY AND DATA COLLECTION

Research Methodology

The research looked at data from three cases: Cutting Tree, Formosa & Special Economic Zones (SEZs)

Cutting Tree (April -December 2015): This was a case in which Vietnamese-speaking online participants voiced collective environmental concerns for the first time in the internet era. Social media was instrumental in connecting individuals and collectively building pressure on the Hanoi local government to stop a plan to cut down 6,700 trees in the city.

Formosa (April 2016- December 2019): This case concerned the Taiwanese company Formosa Ha Tinh Steel having been found to have emitted toxic industrial waste illegally into the ocean through drainage, causing a water pollution crisis affecting four provinces in central Vietnam (Ha Tinh, Quang Binh, Quang Tri and Thua Thien Hue).

SEZs (May 2018 – December 2019): The government announced a plan to create a new special economic zone on three islands and rent it to Chinese investors on a 99-year lease. The Vietnamese Government opined that an SEZS on the three islands Van Don, Bac Van Phong and Phu Quoc could be the best way to spearhead the country's growth. Economists and activists have in general not supported the rationale of this project.

Regarding the nature of comments in online discussions on Facebook, the research methodology was designed as shown in Figure 1.

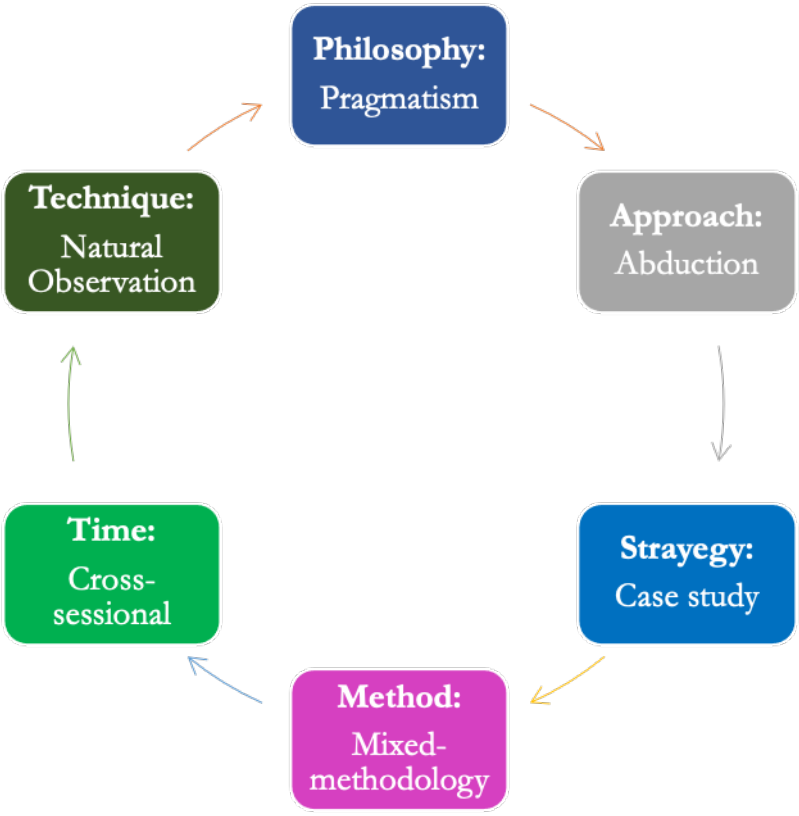

Figure 16: The research design
Source: Adapted from Saunders et al 2012, p.120[6]

Research Methodology

I analyzed 54,486 comments contributed by 33,470 participants on the three chosen cases. Participants were increasingly engaging in online discussions about governance matters over the analyzed period (April 2015 to December 2019). Participants made around one Facebook comments on average in the cases of Cutting Tree (April-December 2015). However, they contributed two comments on average in the case of SEZS (May 2018 – December 2019). The total numbers of online comments and participants of each case have been collected for this study as shown in Figure 2.

	No. comments analyzed	*No. of participants*	*Avg. comments/ participant*
Cutting tree	608	479	1.27
Formosa	26,074	19,071	1.37
SEZs	27,804	13,920	2.00
Total	**54,486**	**33,470**	-

Figure 17: Number of comments and participants collected from online discussions
Source: Data exported from Exportcomments.com for this study

FINDINGS

Findings were based on Nvivo in combination with discourse analysis.

Functions of Comments

"Actors" had started sharing information. An issue was then discussed among "Actors" and "Individuals". "Actors" tended to actively express their opinions about issues. They shared their knowledge with this online community. They built up reciprocity and their trust in others. Once the virtual community was aware of what was happening, they would be more likely to acquire information about the issue by themselves. All these processes of learning the issues, sharing information, exchanging knowledge in the virtual space could be seen through functions of comments as shown in Figure 3.

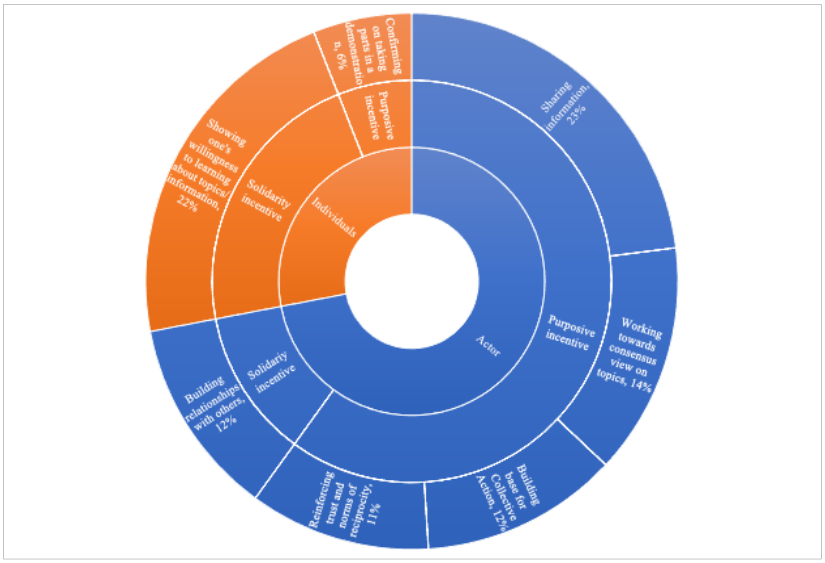

Figure 18: Functions of Comments
Source: Data output from Nvivo, 2020

Discourse in Online Discussions

In online discussions in the chosen study cases, people paid more attention to their turns and became more engaged when others showed interest in their opinions. Otherwise, turn-taking did not matter. Everyone was free to join in any discussion without permissions needed. Everyone was also free to leave their "turns" without making any notification or announcement. In their discussions or comments, people usually skipped pronoun subjects, but others did not feel offended by it as they would have done in real life in Vietnamese communities. However, politeness was still crucial in communications in the virtual space. Metaphors were used to convey one's opinions about sensitive subjects or individuals effectively. People tended to use "*minh*" as the first personal pronoun which is usually used by a junior person or means "*you are more senior than I am*" to show their respect to others in discussions. Besides being polite, people liked to use emoticons to show their support, appreciation to others and their opinions. By contrast, people were likely to express their disappointment, disagreement in texts for details. They were likely to express their anger or strong oppositions by using neologisms such as "*cmn*", "*vl*" which generally mean "*fucking*"in their comments. Together with acronyms, neologism helped to keep comments short and reduce participants' typing time. The ways that language was used in these online discussions reflected the adaption of international 'cyberculture' with its neologisms and its integration with traditional Vietnamese culture.

DISCUSSION

The online engagement on the chosen cases showed that Vietnamese speaking people joined in online discussion mainly for "expressive" purposes. Online commentators stated their concerns over environmental issues in the cases of the Cutting Tree and Formosa. They showed their opposition to violence in protests in all chosen cases. They raised their voices to express their opposition to the SEZs proposal. They fought for their freedom of speech. However, the findings indicated that participants still avoided to directly talk or mention the government or members of the government. Instead, they used metaphors in such circumstances. Since the extent to which political dissents and collective action could influence Vietnam's political system is still debatable (*ibid*), participation in popular movements within this study mainly reflects individual views and feelings rather than immediately indicates collective action. In other words, the main motivational dynamics of collective action within this study is expressiveness as explained by Klandermans[7]. Consequently, grievances, emotions, social embeddedness, efficacy, and identification will be considered to explore the motivation for people to take part in demonstrations[8].

Grievances were built up among Vietnamese speaking people due to a general sense of dissatisfaction with governance and the government. Red algae tide was a reason for the death of fish given by the government was rejected not only by the Fisheries Society but also by the local inhabitants and activists, such as Mother Mushroom, Anh Ba Sam. Greener environment is good for human beings as stated by participants in online discussions. That was also the reason why the local people in Hanoi were firmly against the cutting tree plan. The inhabitants were very angry because of losing their "lungs". Moreover, the tree connected to good memories of those living there. A participant shared his/ her feelings that:

"I have grown up and grown old in the same place for nearly seventy years. So many beautiful memories I have under the shade of the tree in the front of my doors. The first love and inspiration for my career as a writer. It is hard for anyone to live in an area which does not have any tree. For me, it will be much harder, lots of memories and my youth was there" – C00398.

This participant showed his/ her deep connection with the tree and the area where he/ she had lived for the past seventy years. "*So many beautiful memories*" are still alive in his/ her mind, for instance, his/ her "*first love*", "*youth*". Also, he/ she got inspired by the tree. The tree and his/ her professional writing career were growing together. He/she was very emotional when taking about how he/ she would feel about the tree being cut. Personally, for him/her, "*it will be much harder*". I have a sense of that this participant has "a bond connection" with the tree there. His/ her texts make me feel that they were growing up together, like brothers/ sisters. Strong emotions rooted in memories and connections to locations over seventy years combine to form an acute sense of loss and grievance. Grievances and emotions thus became motivations for him/ her to participate in the online discussion.

The SEZs proposal reminded Vietnamese about the history of being colonized by China. They were skeptical of the economic development from the proposal as promised by the government. They used Facebook to state their opinions which became one of the reasons for the 2018 cybersecurity law being introduced later. People felt their sense of privacy was being violated, creating waves of protests later. The choices to join in demonstrations were not made in social isolation. In contrast, personal grievances and emotions were converted into group-based grievances and feelings within social networks. Almond and Verba[9] argued that active engagement in voluntary associations could result in optimistic correlations with political efficacy. According to them, when people engage in voluntary associations, they start gaining knowledge about political institutions and how these institutions work. This creates what Putnam calls 'social capital'[10]. Lin later conceptualized social capital as "*resources embedded in a social structure which are accessed and mobilized in purposive actions*" (p.35)[11]. Social capital is also known as social embeddedness which could also be created and examined through social media.

Social media sufficiently reflects the kind of Internet-based interactions that influence collective action due to three reasons. Firstly, it helps to expand the range of activities for those who want to join in politically. It also makes it easier for those who do not have much interest in politics to contribute micro-donations of time and efforts to political causes. These tiny acts can potentially be scaled up to collective actions. When individuals make decisions on whether they should take such action, they are socially influenced by being exposed to social media. The Internet changes chances and incentives relevant to collective action. Secondly, the availability of social media on mobile applications allow more people to access social networking sites, including those who do not have regular access to the Internet via computers. This could be seen through the rises in several participants in online discussions of the chosen cases. 90% of internet users aged between 16 and 64 years in Vietnam said that they use Facebook as of the third quarter of 2019[12]. By the end of 2019, it was estimated that there were 39.6 million mobile internet users in Vietnam. This number is expected to gradually rise to 42.5 million and 48.6 million by the end of 2020 and 2023, respectively[13].This accessibility also helps people keep updated with what is happening politically in real-time, which could influence the perceived viability of political mobilizations and enhance participants. The information and knowledge that helps people make decisions on what they will do based on references to social group, potentially activating people's social norms. Social media gives people more information about what others will do compared to what they could have in the offline world. In other words, by exchanging information about your own decisions to others you can influence their choices, meaning that individuals might be influenced by discussing with others[14]. Lastly, digital media allows social media users to make others know what they are doing by making them visible. People build up their sense of self and personal identity in relations with others and their positions in collective groups through the level of "interdependent self-construal"[15].

Individuals participate in social groups because of four reasons. People join groups and networks due to opportunities for cooperating to their mutual advantages. These partnerships could help to increase their wealth or benefits. Secondly, they also join in social groups to get mutual support, helping to reduce risks. Thirdly, there is the value of collaboration. Collaboration helps to bring people together, form social groups, build relations between them, develop a sense of community and shared identity. The last reason is pragmatic. Certain things could only be done with cooperation[16]. This is the main reason which people joined in groups in the case studies. However, the findings also presented that people joined in groups because of someone else. For instance, the culture of being a collectivistic society encouraged participants to raise their voices in the hope of protecting their children's future.

"What would you think if your children become slaves to the Chinese? They were speaking for your children's future as well. be nice" – S12944.

"... Ninety-nine years, you want your grandchildren to be slaves in their land?" – S07261

To become an independent country, many Vietnamese citizens' lives were lost. Vietnamese speaking people thus value freedom as Ho Chi Minh, the Vietnamese revolutionary and politician, always said "*nothing is more precious than independence and freedom*" (p.K1)[17]. As Vietnamese speaking people are likely to associate China with colonization due to the long history of being colonized, the SEZs proposal left them concerned about the future of their children. They worried that their children could "*be slaves*" in their homeland. Clearly, relationships between people and groups are not necessarily rational or self-interested. Individuals may prioritize groups' interests over their own, regarding their attitude and orientations towards what they feel right in related to cultural differences[18]. People do not need any specific reason to do things with their groups. People naturally belong to the families, communities, religions, and cultural groups they were born into. Group activities are part of their daily life as a norm. People take part in groups or become part of groups because of the way they live or to make their lives more meaningful. An individual always has a complex set of social relationships in which they belong to and occupy specific roles. Regarding Arrow's impossibility theorem, it is impossible to identify what is socially preferred from an aggregation of the preferences of groups[19]. I thus prefer to use Putman's work on social capital when analyzing and discussing my data.

According to Putnam, social capital "*refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them*" (p.19)[20]. According to his works, bonding social capital is referred to "*ties to people who are like you in some way*" and bridging capital is "*ties to people who are unlike you in some way*" (p.143)[21]. The findings indicated that by sharing goals, values, Vietnamese-speaking people join in online discussions which later became a means to build groups and influenced their decisions on collective action. They are clearly "like each other" in the ways of that they cared about the environment, national security and so on. They are also "unlikely each other" in "some way" as one of them is teacher, another is student, and another is a truck driver. From Putnam's perspective, social capital helps to build up and strengthen group identification and group solidarity which could promote social movements. In addition, social movements gain public support by presenting their cause to group identifications and by reinforcing solidarity within the group. Identification is built by shared common faith about good moral being between members of the groups through group affiliation. Group identifications represent a sense of closeness to other group members of the same race. It is important for mobilizing a movement due to its influences on groups' shared values. Group identification is, thus, often determined through claims, activities, and communications of movement[22]. Tarrow[23] describes group identification "*through the study of how people struggle, against whom they struggle, and in the name of which symbols and points of concern they struggle*" (p.197). Group identifications set the boundaries of collective interests through which

the patterns of movement mobilization will be guided accordingly. However, group identification is not an adequate setting for mobilization to happen. Mobilization needs motivation which is created through group solidarity by relating the welfare of the group to a program of political or social change and generating the belief that the group is expected to act cohesively to make that change come true. As per Klandermans[24], people must decide on whether they will take parts in a movement without having sufficient information about others' decisions. They, then, must predict others' participation as per their belief that the group has a legitimate grievance, has got a reasonable strategy of remedial action, and will act in a well-integrated way. Their beliefs constitute the feeling of solidarity which represents capabilities of unified action to reach the groups' goals. It is impossible for one to feel solidarity with a group that he/ she does not identify with but it is possible for one can identify with a group without feeling solidarity. Solidarity is built up thank to interactions among group members. Solidarity and identity are created by the efforts of every group members in relating themselves to other people. This is the way people decide on what groups they belong to. By understanding this point, group solidarity was then required to be strengthened thank to interaction and shared Ideology between group members. This is the reason why "Actors" in the chosen cases were actively sharing information, working towards consensus view of topic, building base for collective action, and reinforcing trust and norms of reciprocity. Interactions reinforce group members' trust, and belief through daily experiences and could build up a shared ideology. A shared ideology can, in the same way, increase everyday interactions. To spread out new cultural values, movements must rely on existing networks of group identification, then build up shared Ideology and patterns of interactions which strengthen the feelings of group solidarity. Cultural values help to develop roots of group identification, reinforcing group solidarities. As a result, people can be encouraged and motivated to take parts in collective actions. As a result, everyday activities could effectively enhance group solidarity.

Having said that, to consider how collective action could be formed, individuals need to be put in the center of study. Individuals are at the center of social media, not organizations. Social media allow users to control their social networks and personalize their own online experience daily through digital activities other words; social media tailors the information environment for each user based on their interactions. What people search for will link to and appear on their social sites. These personalized networks in combination with their participation in social network sites will generate "networks structure effects" that can shape social influences. The more people spend their time on social media, the more social media can reshape their decisions on political participation. Moreover, the provision of social information allows users to utilize their time, efforts, resources in more efficient ways. This causal process may be hard to observe when the contribution is made at the individual level. However, at the collective level, the outcome of the provision of information becomes more observable, given the incentives to act strategically. Indeed, Internet-based platforms allow people to be visible or anonymous. People may feel safer and more confident to take part in political action when being anonymous. However, just as social media make individuals aware of what other people are doing, they also have the potential to make other people aware of what the user herself is doing. Consequently, visibility is likely to raise the amount that a person will contribute. Visibility of individuals' action is essential in determining their decisions on participating in collective action. Regarding the findings and discussions above, I am proposing the Intentional Collective Action framework, which is based on Gamson's approach, as shown in Figure 4.

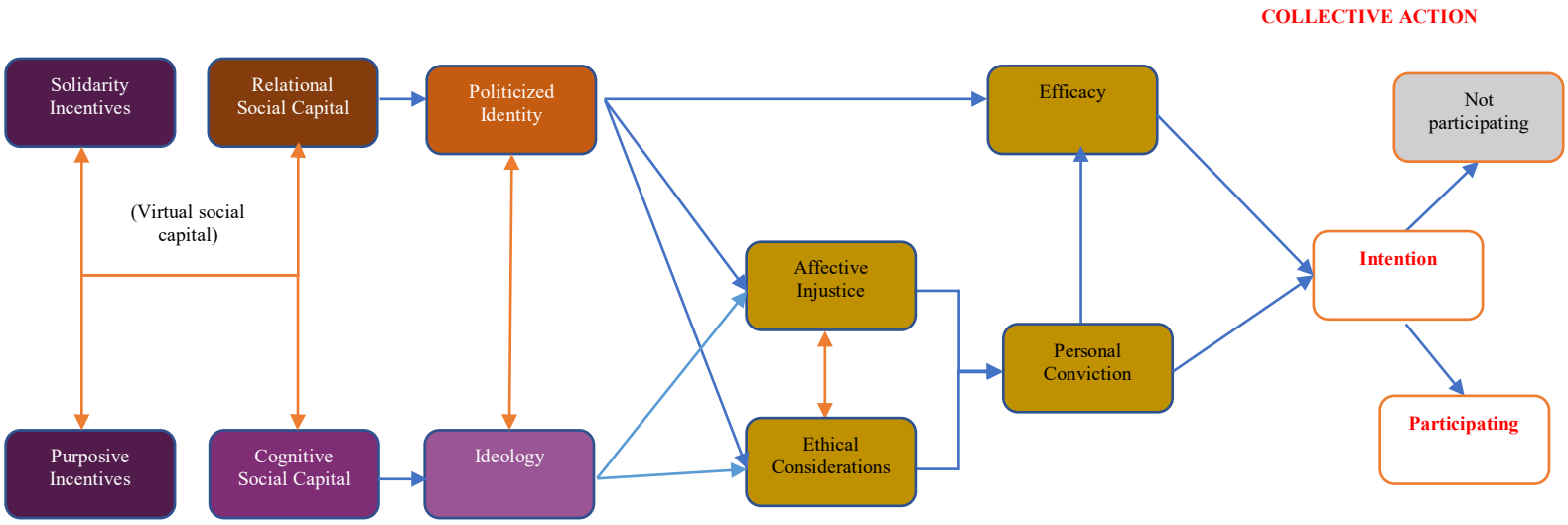

Figure 19: The proposal of Intentional Collective Action Framework
Source: The researcher's analysis from Data output from Nvivo, 2020

CONCLUSION

Vietnamese speaking people engaged in online discussions mainly for "expressive" purposes. Their engagements were strongly influenced by relational and cognitive social capital. Purposive and solidarity incentives played key roles in individual collective-decision-making. Efficacy, ethical considerations, and affective injustice have strong influences on one's decision of taking part in collective action. Undeniably, voices were being heard and people were able to raise their opinions as long as they have access to the Internet. I hope this study would encourage Vietnamese speaking people to engage in online discussions and share their views and help activist maximize outcomes of their campaigns on behalf of Vietnamese– speaking people.

However, the study possesses limitations. Firstly, propaganda created by the government could distort the holistic views of the findings from the research. Secondly, the users are likely to make more extreme and more offensive statements on the Internet than they would in face-to-face circumstance owing to the term of deindividuation. Lastly, the lack of information about participants could lead to limitations in analyzing the research's results. Further researches are needed.

NOTES

[1] Deryakulu and Olkun,"Analysis of Computer Teachers' Online Discussion Forum Messages about their Occupational Problems'.
[2] Triebl, 'or not to be. The Strategic and Non-Strategic Use of Negative Identifiers in Online Forums'.
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[12]*Statista, 2020a.*
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[14] Ostrom and Ahn, *Foundations of Social Captical.*
[15] Scross et al, 'The Relational-interdependent Self-Construal and Relationships'.
[16] Kaplow and Shavell, 'Any Non-Welfarist Method of Policy Assessment Violates the Pareto Principle'.
[17] USS International Affairs, 'North Vietnam'.
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[20] Putnam, *Bowling Alone: The Collapse and Revival of American Community.*
[21] Putnam, 'E Pluribus Unum: Diversity and Community in the Twenty First Century, the 2006 Johhan Skytte Prize Lecture'.
[22] Gamson, *Talking Politics.*
[23] Tarrow, 'Mentalities, Political Cultures and Collective Action Frames: Constructing Meaning Through Action'.
[24] Klandermans, 'Mobilization and Participation: Social-psychological Expansions of Resource Mobilization Theory'.

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BETWEEN ISOLATION AND RE-APPROPRIATION: POTENTIAL OF LINEAR URBAN VOIDS

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INTRODUCTION

Against the common urban strategy to consider any urban void ancillary in the predominant market economy it is urgent to reassess the role of these potential spaces from the bottom up, starting from physical roots and theoretical foundations. This paper argues that the closer we get to the genesis of the various types of voids in our cities, the more the story unravels. The results of research on linear spaces formerly used for the transportation infrastructures in the city of Aberdeen in Scotland are presented by confronting similarities, threats and design challenges.

The authors question the fallacy that the "space of the difference" - offered by the ubiquitous presence of urban voids - can simply be adapted to conform to the predominant climate. Often when addressing the notion of urban voids in contemporary architectural and urban practice, the knowledge is reduced to an illegitimate linguistic simplification. There is a sense that, despite the preponderance of ecological metaphors, the language works to deny the fact that below the superficial green veneer, business enters the scene as usual.

What is investigated instead is how to treat the urban voids as "dense voids". By becoming potential urban spaces, the field of intervention expands its domain in a dynamic sense into a set of design principles and eventually overcomes the non-coincidence between architecture and the city: how to seek adaptive thresholds instead of unpredictable voids.

LINEAR URBAN VOIDS

Comprehensive studies and deep understanding of design strategies in relation to the origins of the urban voids are still vague and somehow troubling our present.[1] This complex urban phenomenon needs to be urgently addressed. What will happen if we consider the urban voids never neutral and "empty" rather always "tensioned", both made and occupied by forces which produce and use them? [2]

By following this reasoning, the relational definition of architecture will prevail and with it the notion of a "pre-urban void" as being always implicated in a network of relationships,[3] of which the architectural is only one of the possible codified form of expression.

Concerning the linear urban voids (LUV) the line itself embodies relational archetypes: internally, in how organises forms and space making, and externally, in how relates to forms of inhabitation. To illustrate this point, refer to the Figure 1 from the children book *Mr Left and Mr Right*, where the relational definition of line is cleverly reduced to its very essence: on the left page of the book we can see Mr Left and on the right Mr Right; both are alone and divided by the line between the pages; finally, physical and relational separation prevents them to meet despite endless attempts to. The LUVs embody this inner working of the line by definition.

Figure 1. Mr Left and Mr Right. Source: Fehr, D.

We need boundaries and we do not need boundaries

Our life is ordinarily governed by borders and boundaries of many kinds. Softer jurisdictional lines govern where we live, who we pay taxes to, the opportunity we are given,[4] and how we experience our cities with their own empty buildings, lost gardens, abandoned railway stations. Obstructions including oblivion, local authorities, private landlords and a promise of an impending upturn in the property market deny the hidden urbanity of the urban voids.[5] Every boundary identifies, distinguishes, separates, marks, and classifies - Figure 2. However, we can argue that the presence of these "lines" is not necessarily negative, rather the opposite [6] as long as they do not become barriers. Martin Heidegger beautifully describes this intrinsic positive porosity:

> 'A boundary is not that at which something stops, but, as the Greeks recognised, the boundary is that from which something begins its presencing. That is why the concept of horismos, that is the horizon, the boundary. Space is in essence that for which room has been made, that which is let into bounds.' [7]

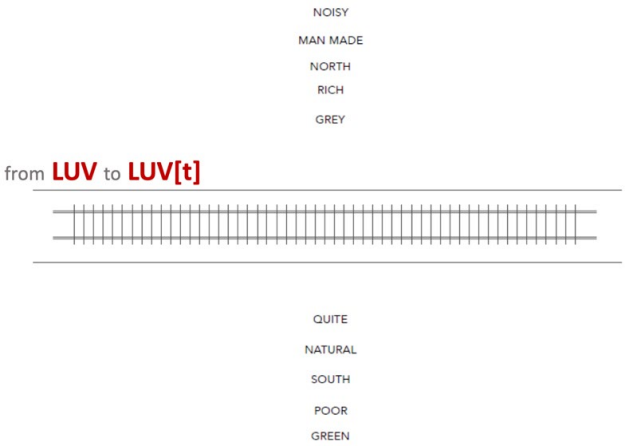

Figure 2. Lines for transportation infrastructures.

Tangible and intangible voids

Stoppani considers urban voids as "spaces that are not feared" and attempts at classification, identifying tangible and intangible voids.[8] The former are "not described as physical voids" rather the opposite: a vacant lot, an unbuilt area, an empty expanse where the indication of lot, area, and expanse hints at the possibility of an investment. The latter instead being invisible, are "not represented as architectural voids" and are "built by concerns that are not those of architectural design". A typical example of intangible void is the dismissed railway poorly converted to public path following simplistic guidelines - Figure 3. Both tangible and intangible voids are "very dense of architectural concerns and possibilities", because architecture cannot dispose of its visible and invisible surroundings.[9]

Figure 3. Former railway, now Deeside Way, Aberdeen.

Given the above considerations, are the LUVs densely occupied by architectural concerns because they act like linear boundaries in our cities? Furthermore, can LUVs be considered "dense voids" precisely because of their spatial and relational characteristics? In the next chapters we will try to answer to these questions.

READING LINEAR URBAN VOIDS FOR TRANSPORTATION

This study focuses on the linear urban voids for transportation (LUV[t]) and pragmatically addresses two segments of voids (A and B) along the railway line in Aberdeen, Scotland - Figure 4. The void A is part of the former Deeside railway built in 1853 and closed in 1966 as a consequence of the decommission of uneconomic and underused railways.[10] Later, the popular Deeside path replaced the dismissed rail line. The void B comprises a sequence of empty volumes under the arches of the viaduct supporting the Aberdeen Railway; built in the 1880s is composed of several small brick spans which cross the river Dee and overcome the topography of the city.

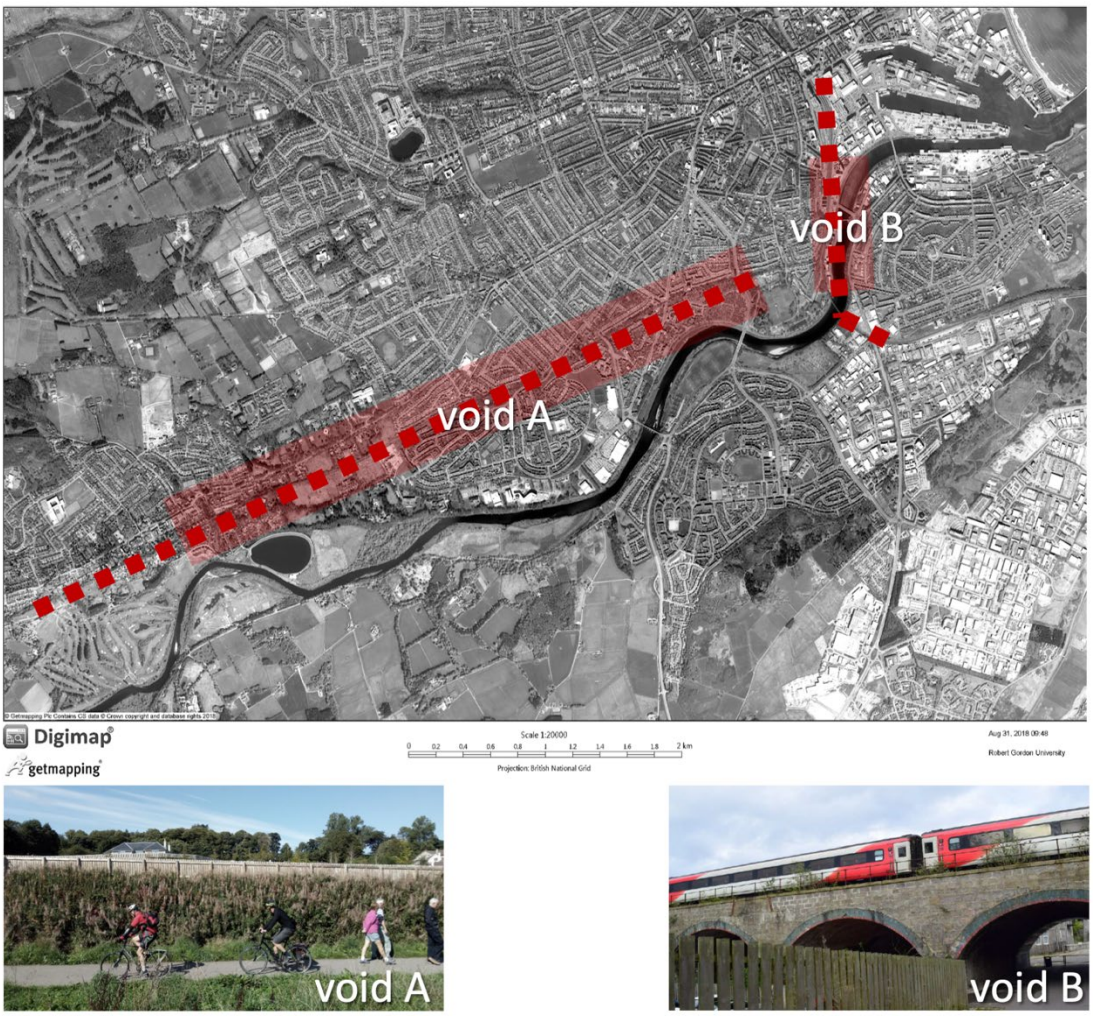

Figure 4. Voids A and B, Aberdeen.

Comparison between LUV[t] A and B

The contexts of both Voids A and B exemplify common conditions of LUV[t]s across European cities and beyond. According to Stoppani's above definition: A is an intangible architectural void, built by concerns far from those of architectural design, simply paved with asphalt and marked public path by indicator signs; B represents a clear example of tangible void and consists of a sequence of empty volumes under the arches not presented as physical voids, rather as opportunity for appealing investments.[11]

Continuing with the comparison, with regard to the spatial and relational characteristics - Figure 5: void/space A is reused vs B currently used; A is a void/space above the railway line vs B below; both share the strong spatial linearity of the main trajectory of the rails, parallel in A and perpendicular in B; both present a clear separation from and between the surroundings; finally, the micro-realities, if not physical divided by the lines, are socially disjointed.

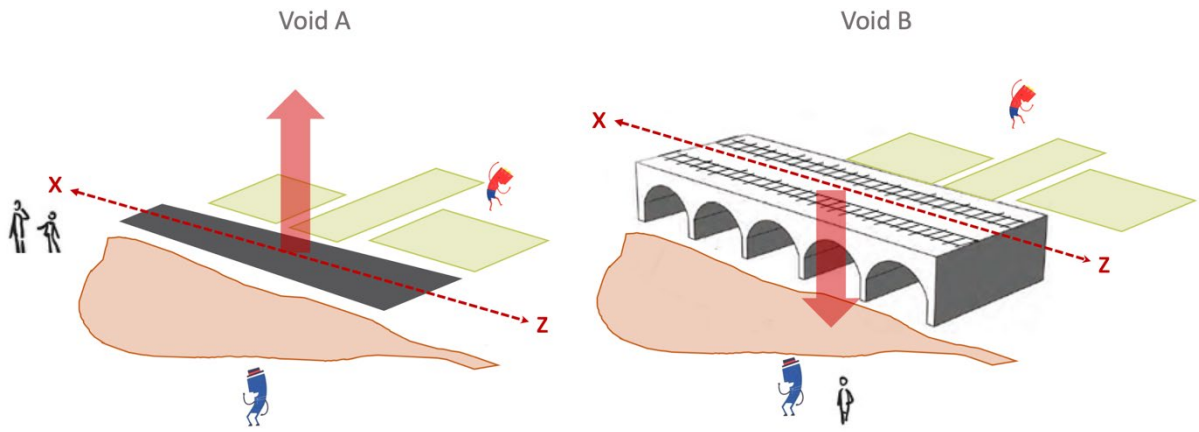

Figure 5. Void A & B: separation from and between the surroundings.

Thinking rhythmically

Passing through a linear space/void certainly involves a spatiotemporal experience which cannot be ignored during the process of urban regeneration. As anticipated, further investigation on the genesis of the LUV[t]s is required. A railway is a long linear infrastructure designed for the geopolitics of national intercommunications and mobility[12] meant to connect two places. The sequence of spaces between the departure and the destination is constantly read-through the windows of the train in motion and can be defined as a constant horizontal view at a great speed - Figure 6.

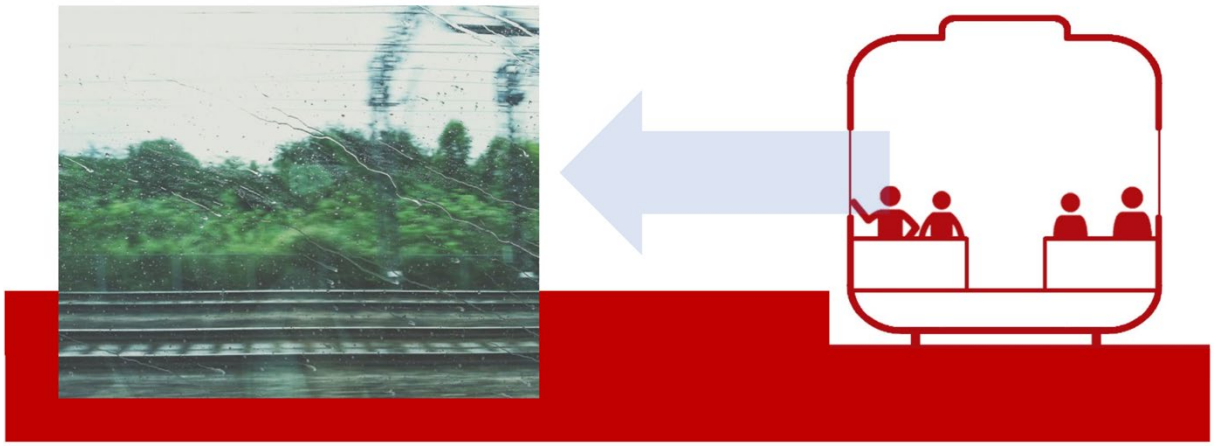

Figure 6. View from the windows of a train in motion.

This ordinary experience of travelling along a railway leads to a reflection on the consequences in terms of rhythm analysis. The rhythm mainly relates to a forward movement and comprises three elements such as accent, meter, and tempo; their combination is the basis of the space form generation.[13] It can be described as an ordered recurrent alternation of strong and weak elements in spatio-temporality, a modulation of the particular and the universal where walking implies discovering and transforming the character of the city over time.[14]

The morphological configuration of the railway line denies the possibility to enrich the sense of a place by limiting every individual variation of rhythm. During the journey the sequence is made of recurring points represented by the strong elements of departure and arrival (including the intermediate stations), while the weak elements are the micro-localisms, barely perceived from the window. This spatial effect persists regardless of the usage (i.e. fully, partially or inoperative infrastructural lines).

Concerning the LUV[t]s we can argue that both strong and the weak elements are rhythmically disjointed. The lack of relation keeps recurring between the linear void and its surrounding micro-localisms and between the micro-localisms themselves. Encompassing the intangible effect of the rhythmic change[15] enables to better envisage any vulnerability of the system and in doing so to restore both disconnected micro-realities and fragmented relations.

DESIGN PRINCIPLES TAXONOMY

Every basic element that points to the presence of LUV[t]s requires a deep evaluation. Only by retrieving all aspects involved in the context, it will be possible to re-discover the margins of freedom for any form of sustainable intervention. Two important assumptions are necessary in order to outline an alternative design framework:

1. voids should not be merely treated as empty spaces which can be used, bought and sold;
2. voids should not be represented just by a form of container which pre-exits its usage.

From these standpoints LUV[t]s embody active form of social relations and give form to encounters because are structured system of relations where people can handle and symbolize various levels and forms of proximity.[16]

The following pinwheel with a matrix of interlaced design principles represents an applicable taxonomy during the entire design process, from the initial investigations to the project refinement. The diagram explores: site, relations, and use - Figure 7. This chapter discusses the results of its application for the study of the two voids in Aberdeen. A and B were deeply investigated during the design process work of different Architectural Design Studios at the Robert Gordon University between 2018 and 2019. The description of each design principle is emphasised by a sequence of comparative images to help the reader on one hand to visualise threats, opportunities and challenges of both voids, and on the other to display and contrast results of the students' design projects.

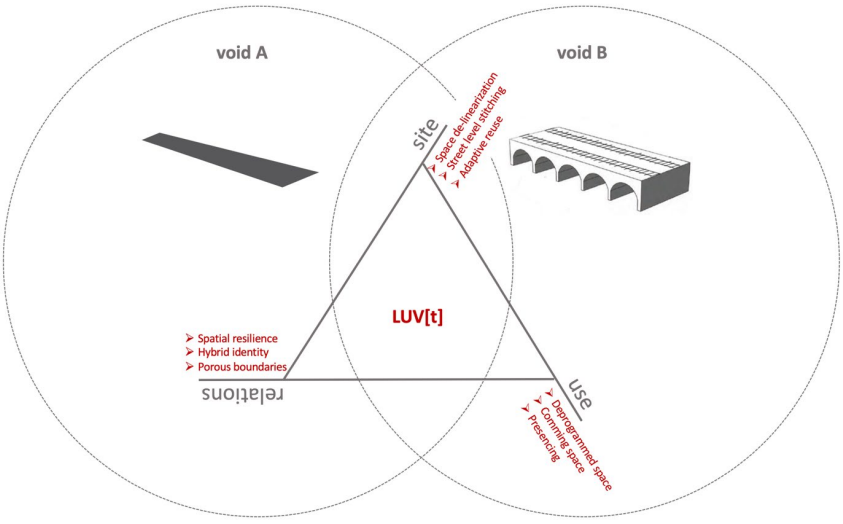

Figure 7. Design principles pinwheel.

Site

The site with its embedded linearity represents the first strand of the pinwheel. The geography of the site together with its historical conformation represents both a constraint and an opportunity to evolve. Working on the site means collecting the evidences of the place and select a limited range of privileged design principles: adaptive reuse, space de-linearization and street level stitching - Figure 8.

Space de-linearization

Space de-linearization introduces other trajectories of circulation in order to challenge the spatial and relational linearity of the spaces above the former railway line (void A) and below the present line

(void B). The variety of movements generates disturbances and perturbations that transform the intensity, the rhythm and wealth of the voids while challenging the weak stability of the former linear forms.[17]

Street level stitching

One of the most important design questions is how to embody the active interdependence between weak and strong elements of the LUV[t]s. In other words, how to create relations between the lines and their surroundings without denying their historical identity of being infrastructure for transportation. The ground and the street levels become the focus of intervention by combining two tendencies: on one hand the search for external presence, and on the other the exploration of internal volumes.

Adaptive re-use

The development of the modern world is inextricably bound up with certain materials such as concrete, steel, plastic. The LUV[t]s are at the centre of the discussion on decarbonisation. It is argued that carbon form cannot be simply erased; it must be overcome, supplanted and transformed both technologically and culturally.[18] The solely action of demolishing to rebuild a new structure may prove to be limiting. Concerning the LUV[t]s, we advocate adaptive re-use and pursue a form of "acupuncture urbanism"[19] in which all base elements are identified, critically understood and exposed.

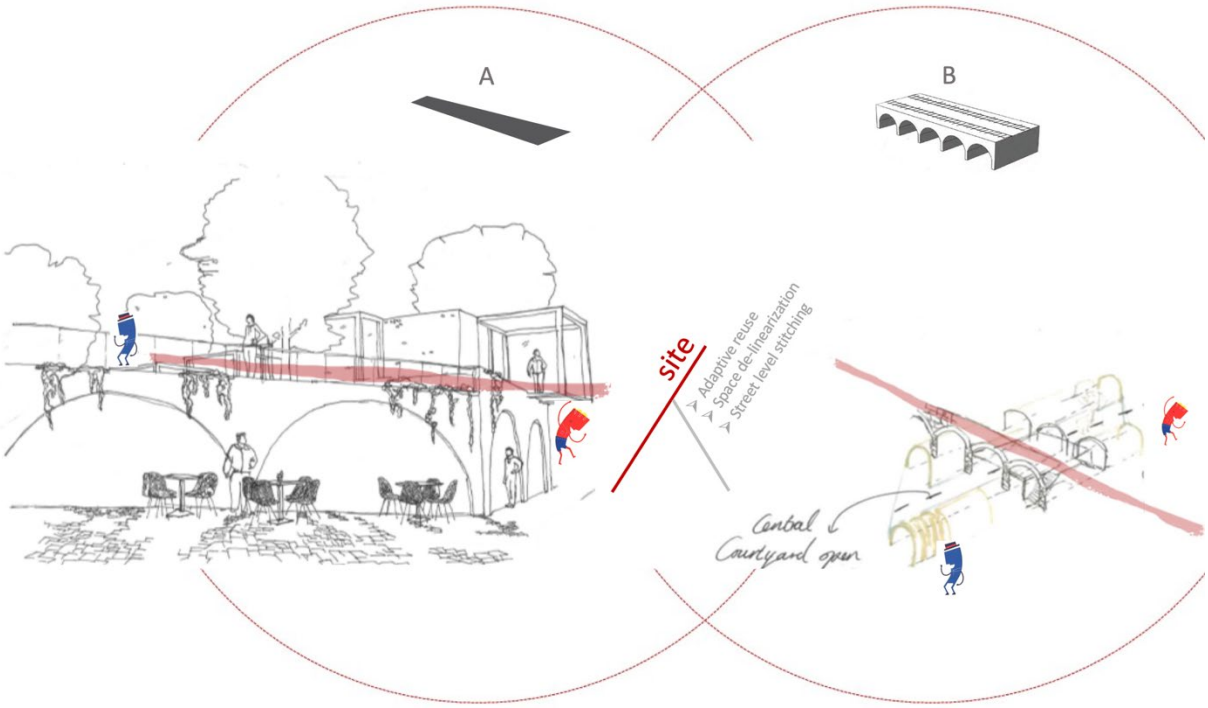

Figure 8. Site.

Relations

The second identified strand of the pinwheel is relations, comprising three design principles as illustrated in Figure 9: spatial resilience, hybrid identity, and porous boundaries.

Spatial resilience

According to Colander and Kupers, system survival or system resilience is an important system-level goal.[20] The authors indicate that an analysis of the financial system after the recent crisis is a way to evaluate resilience, suggesting that the search of efficiency among the constituent parts does not address the risk of systemic breakdown. Yet a dysfunctional system, thus a system that exhibits

features “that are widely regarded as problematic”, may be resilient, in the sense of being capable of surviving. It is argued here that LUV[t]s are spatially more resilient than other spaces for intervention in the city, precisely because of their embedded dysfunctionality and often fragmented planning policies in place. We can reword this lack of efficiency adaptability.

Hybrid identity

The adaptability of the LUV[t]s is guaranteed by rediscovering their hybrid identity spanning past, present and future. This is possible by means of integrating their memory of the past, reasserting their commitment to the present and projecting new symbolism in the future.

Porous boundaries

If the nature of the LUV[t]s is accepted and preserved as good example of un-codified and perhaps out of the norm spaces, the city would benefit from the presence of new urban spaces. Acting as porous boundaries and embracing different rhythms, the physical and relational porosity of the LUV[t]s opens to explore alternative urban scenarios.[21]

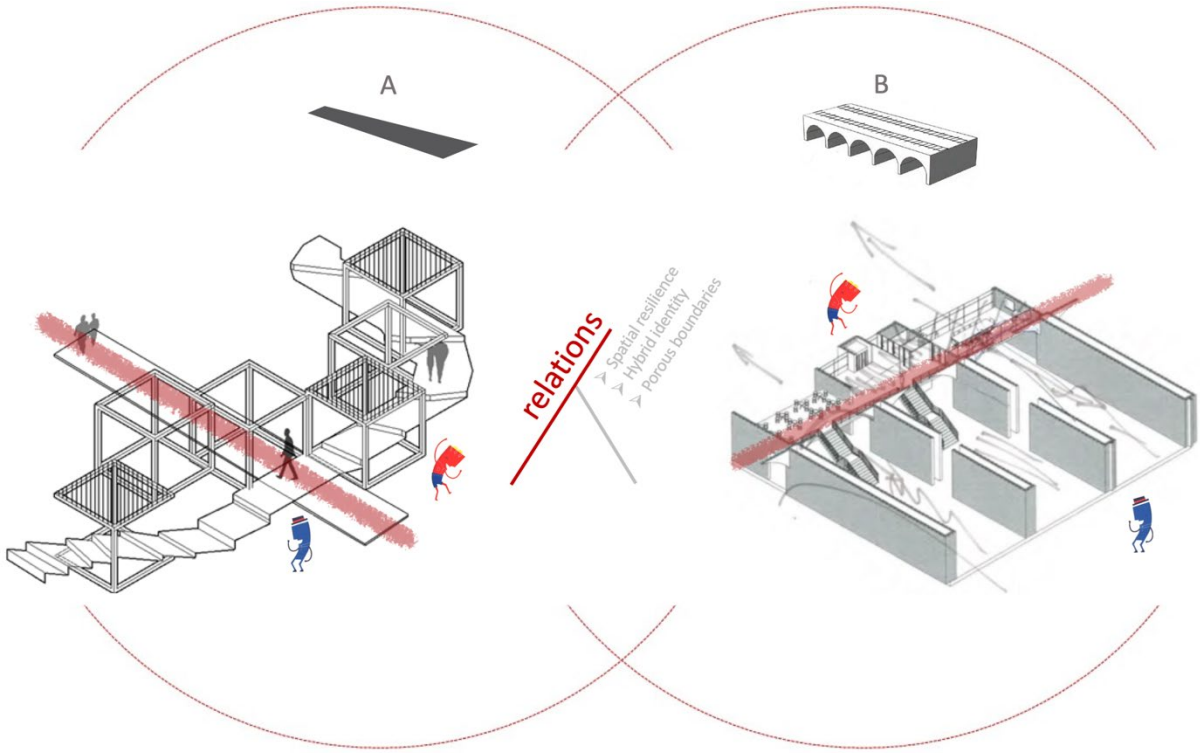

Figure 9. Relations.

Use

The third and last strand of the pinwheel is represented by the use with its design principles as illustrated in Figure 10: deprogrammed spaces, comming spaces, and presencing.

Deprogrammed spaces

By definition every LUV[t] contains evidence of cultivation or use. The accumulation and stratification of traces is in place before every form of intervention. This richness represents an opportunity for our cities to avoid the creation of any further rigid urban space. There is a desperate urgency of an architecture program-free, grounded in the everyday and perhaps offering an “elevated ordinary”. In this sense the LUV[t]s could lead the process.

Comming spaces

In the contemporary metropolis "comming" and "common spaces", understood as distinct from public as well as room private spaces, are emerging as sites open to public use in which, however, rules and forms of use do not depend upon and are not controlled by a prevailing authority.[22] Perhaps the LUV[t]s could represent the place to test the meaning and production of spaces of communing in the context of today's urbanised world.

Presencing

The word presencing implies the blending of sensing and presence. Presencing shifts the place of perception to the source of an emerging future whole and to a future possibility which is seeking to appear. The LUV[t]s can develop a sense of collective capacity, of co-sensing and co-shaping emerging future possibilities while displaying a strong architectural character.

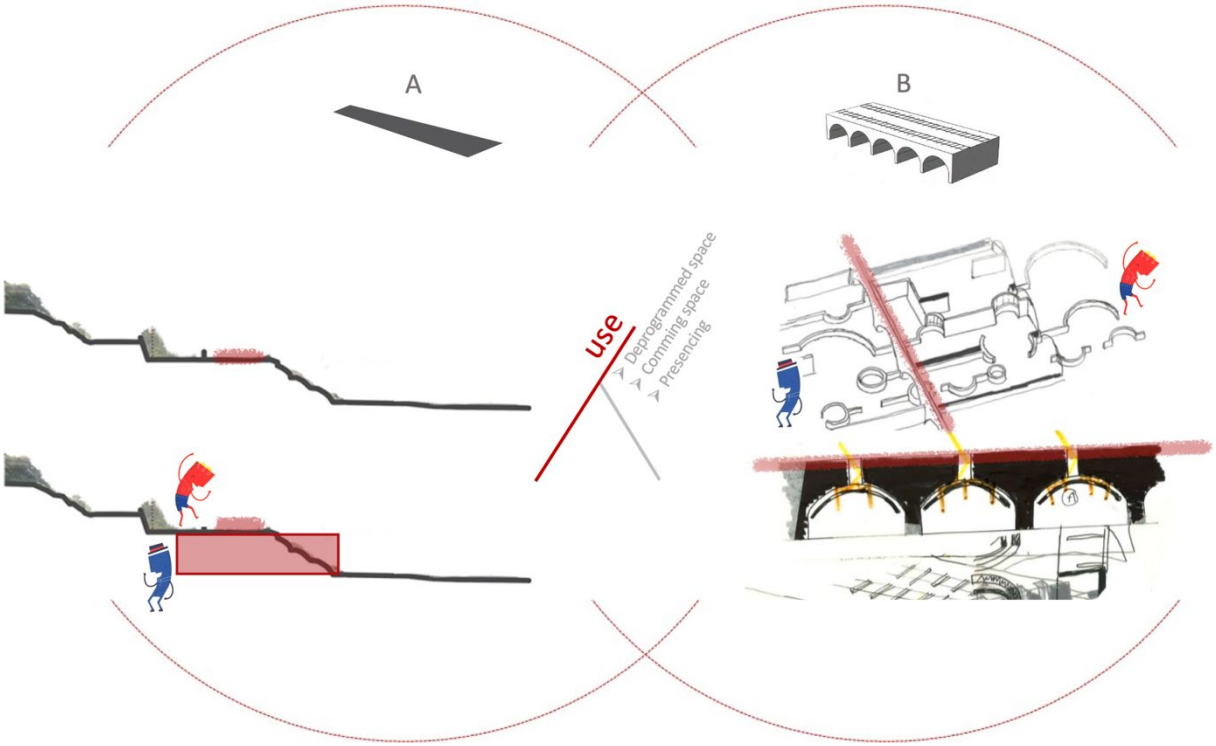

Figure 10. Use.

After the completion of 360-degree rotation of the pinwheel matrix of design principles, it is interesting to explore if some lessons learned from the research on LUV[t]s are applicable to generic LUVs.

CONCLUSION

The decline of industry has left a new spatial condition, where the city's creative nature can strategically take advantage of the voids left behind. The authors argue that this is an important area of urban design thinking application. The "capitalistic need for a perfect, safe, enclosed loop" tends to consider the urban voids by-products to reintegrate back into the economy without expanding the discussion on specific characteristics.[23]

By focusing our attention on the linear urban voids, it became clear that the structural linearity often persists for more than a lifespan by acting like relational boundary and physical separation. It is felt that design approaches are needed to embrace diverse ways of working within the existing field of forces in order to "circumnavigate predictability".[24] In addition to it, the involvement of more "dilettantes" is anticipated, who neither worry about making the wrong move nor prevent friction between different parties involved in the design process.[25]

The extensive research projects conducted during the Architectural Design Studios have helped to identify and investigate two common examples of linear urban voids related to the transportation infrastructures: the void A, a dismissed railway line which falls into the category of architectural intangible void; the physical visible void B, consisting in a sequence of volumes under the arches of the railway viaduct. When it comes to reclaim the use of these voids in our cities the challenge lays in turning them to active spaces through the application of a limited selection of design principles. The formulation and rigorous use of the pinwheel taxonomy have outlined a combination of methods both to read and overcome the linearity of any infrastructural void.

The research is still open in the attempt to evaluate the opportunity to apply similar principles to general linear urban voids and not only to those one of the transportation infrastructures:

- Concerning the site and the context, working on reactivating the memory by avoiding any spatial camouflage of the linearity.
- Expanding the relations, by designing intermediate, even indeterminate spaces to prolong the experience of entering or leaving; designing adaptive thresholds instead of buildings that extend the architectural space beyond the entrance, with ambiguity about the state of being either inside or outside the "line".
- Seeking use and "solid" presence, grounded in pursuing non-committal spaces, where "making agreements" relies on a genuine devolution of some decision rights. It is very different to using consultation as a means to bolster planning decisions, where the decision rights rest largely with a planning authority.

The unresolved problems of the past constructively trouble our present by offering the opportunity for reflecting on the future. The linear urban voids are "densely occupied by architectural concerns and possibilities"!

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[18] Elisa Iturbe, "*Architecture and the Death of Carbon Modernity*," in *Log* 47 (2019): 20-23.
[19] Jaime Lerner, *Acupunctura Urbana* (Barcelona: Iaac, 2003).
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[21] Piero Zanini, "*Border*," in *Landscape + 100 Words to Inhabit It*, ed. Daniela Colafranceschi (Barcelona: Editorial Gustavo Gili, 2007), 115.
[22] Pier Vittorio Aureli and Maria Shéhérazade Giudici, "*Island: The Settlement from Property to Care*," in *Log* 47 (2019): 198.
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