New York - Livable Cities

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Livable Cities: A Conference on Issues Affecting Life in Cities

ARCHITECTURE_MEDIA_POLITICS_SOCIETY

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INTRODUCTION

Livable Cities: A Conference on Issues Affecting Life in Cities

What makes a city livable? Transport, housing, health. Open space, mobility and the environment. Matters of culture, entrepreneurship, crime and safety. Affordability and access to education. Depending on whose 'livability index' you look at, it may include design quality, sustainability and the digital infrastructures of the smart city. Other criteria applied may encompass food access, job opportunities or walkability. Inclusivity and the politics of participation also come into play. Discrimination in all its forms impacts livability and social and political equity.

The past two decades have seen an exponential rise of livability measures. Reflecting increased urbanity globally, they risk making the notion of the city ever more contested. The two cities that host this event are cases in point. The Mercer Livability Ranking takes New York as the datum by which all other cities globally are graded – as better or worse. London, by contrast, measures itself: the London Assembly scoring everything from air quality to indices of deprivation. When we consider the livability of cities then, it is clear we are dealing with a plethora of issues – both isolated and, inevitably, interconnected.

Responding to this scenario, the papers in this publication tackle these issues above from various angles. They examine how we live in cities, and how every issue we encounter morphs with considerations of others, whether housing, architecture, urban planning, health, IT, crime and safety, city management, economics or the environment.

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SMART, FUTURE, FLEXIBLE - ADAPTIVE ARCHITECTURE AND URBANISM

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INTRODUCTION

The research paper focuses on climate change and flooding problems, affecting millions of people and infrastructure, especially densely populated coastal areas worldwide, majorly affecting urban poor, slums and neglected communities. Now challenge for coastal cities is to adapt as per climate change and extend cities on water and ground. The research is primarily focused on the coastal city region of Mumbai, India. The vital aspect of this paper is to study and understand typologies to adapt on ground and water by hybrid method for climate-responsive, cost-effective and energy-efficient building for expansion of habitat on water and ground. The quest is to make hybrid flexible typologies based on the local environment, socio-economic status, context and local materials. The form, space and functional organization of typology design are in the course of human behaviour (time, space and activity) of the area, which can be adapted as per rising sea level, family growth and need. It is possible through the fusion of design, science, engineering and technology, and people's participation in construction. The term "adaptive architecture and urbanism" means adapting and building as per budget available, adapting to community needs, adapting to the climate crises, adapting to place and context, and adapting to architecture level to urban scale. This research paper is a chapter of PhD study at TU Innsbruck, Institute of Experimental Architecture, Hochbau.
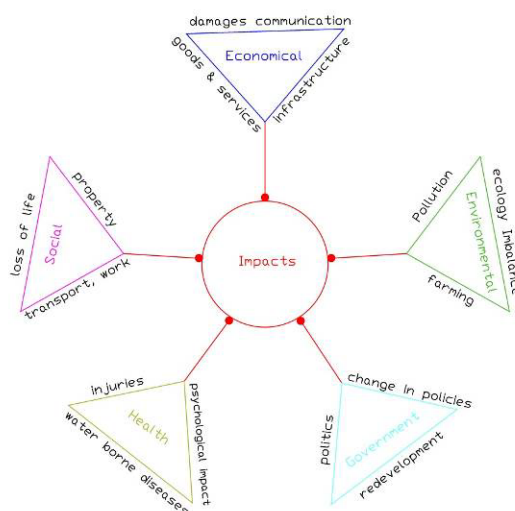
Impacts of flooding on cities

Figure 1. Climate and flooding impact (drawing by author)

PROBLEM

The planet has made into headlines throughout the twenty-first century. And the news is not good. The diagnosis is bleak: the world we live on and live with is exhausted, drained, depleted, damaged, broken. In short, the condition is such that the planet is in urgent need of critical care. In medical terms, acute care is a specialized branch of medicine dedicated to diagnosing and treating life-threatening conditions.[1] Rising sea levels, flooding cities are affecting countries around the world. Its impact is on the economy, environment, health, social and political. As per the stats, major coastal cities are at high risk, including New York, Miami, Shanghai, Osaka, Indonesia, Mumbai, etc. These cities are witnessing increased population, high economy, land and living costs. As per United Nations in the 2017 ocean conference, more than 600 million people (around 10 percent of the world's population) live in coastal areas that are less than 10 meters above sea level.[2] We are changing the Climate, and Climate is changing us.
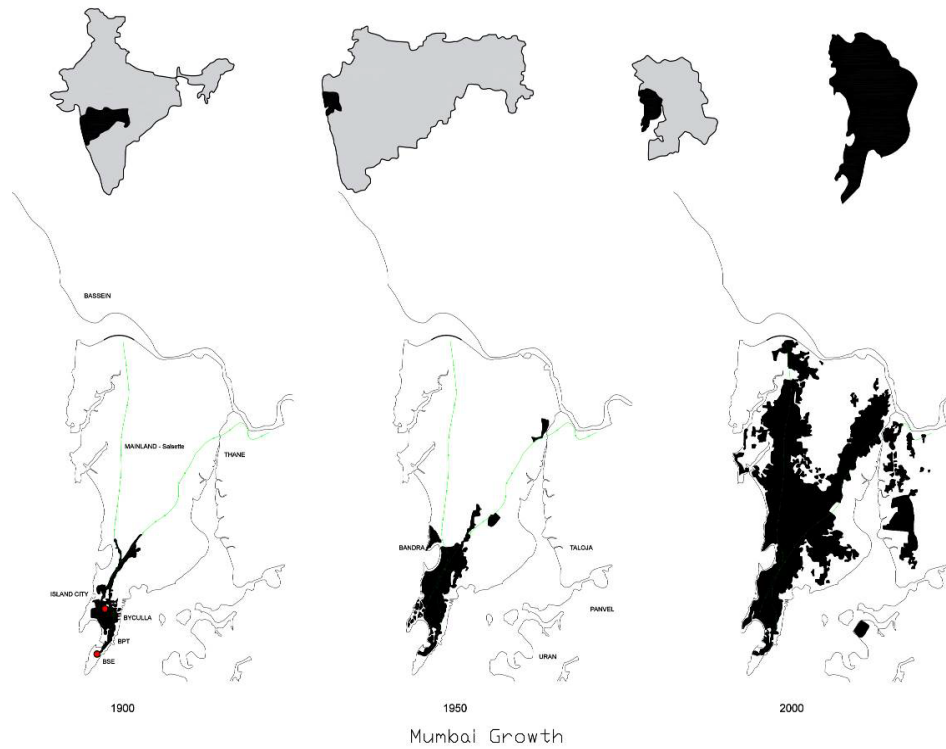
Figure 2. Mumbai location and growth 1900-1950-2000 (drawing by author)
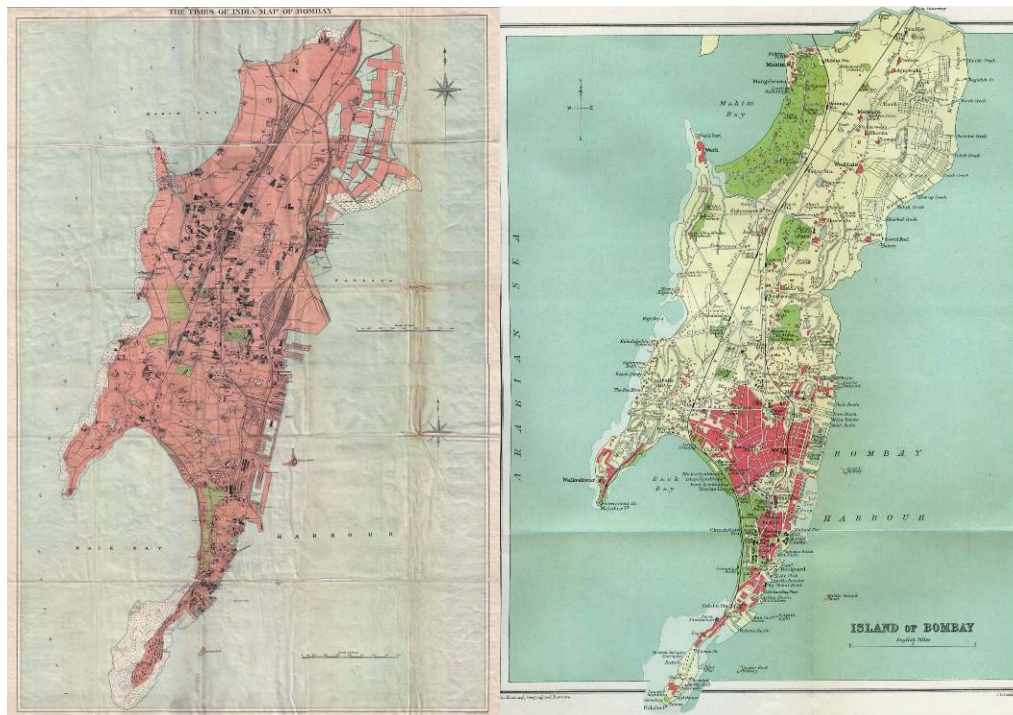
Figure 3. Left image- Historical map Mumbai (Bombay) 1895 and right image - Historical map Mumbai (Bombay) 1909

Coastal floods accounted for only 1% of the flood events, while riverine floods accounted for the vast majority. River flooding in many areas deposit fertile sediments that aid food production. Flash floods that bring a level of unpredictability accounted for almost a sixth of the total, as did unclassified events. Floods are amongst the most damaging and recurrent of all disasters.[3]

Mumbai-Urban Poor

Poor communities often live in the most hazardous and unhealthy environments in urban areas. Many build their homes and grow their food on river floodplains in towns and cities. Others construct their shelters on steep, unstable hillsides or along the foreshore on former mangrove swamps or tidal flats. People suffering from these poor conditions may find their difficulties compounded by the consequences of climate change.[4] Mumbai, the capital city of the state of Maharashtra, according to United Nations, as of 2018, is the most populous city of India and the seventh-most populous city in the world with a population of roughly 20 million. A large island was created from the former seven smaller ones (Colaba, Little Colaba, Bombay, Mazagaon, Worli, Parel and Mahim), and the most significant land reclamation projects were completed by 1862. Mumbai is the result of intensive land reclamation measures that continue to this day. [5]

Mumbai is estimated to have the largest slum population of any city in the world. In 2016, an estimated 55 percent of Mumbai's population lived in slums. A slum is a densely populated area typically characterized by poverty, deteriorated housing/buildings and poor living conditions. Apart from the millions of people living in Mumbai slums, the city also has a high number of homeless who cannot afford any form of permanent shelter. The official number of homeless people in the city is around 50,000. Some argue that the actual figure might be much higher.[6] Mumbai's flood risk makes the city a "high-risk" place for climate change vulnerability. Among the world's 31 megacities, Mumbai ranks as the ninth riskiest based on about 50 factors ranging from preparedness to exposure to climate shocks like heat waves, drought, hurricanes, and flooding. Mumbai's high population density, high poverty rates and poor sewage and drainage systems heighten the risk posed by climate-related events like flooding. "Mumbai is a significant city in terms of the economic wealth it generates." The city's economy rivals that of some developed nations in Europe. Its stock exchange is valued at around $2.2 trillion - almost twice the entire GDP of Mexico or Australia. Its Hindi-language Bollywood entertainment industry generates billions of dollars in global revenues each year. Property developers are aware of sea-level rise, but they're in the business to sell. "No developer in Mumbai does any kind of risk analysis on how sea level and climate change is going to factor into their risks," says Rohitashwa Poddar, managing director of local developer Poddar Housing and Development.[7]
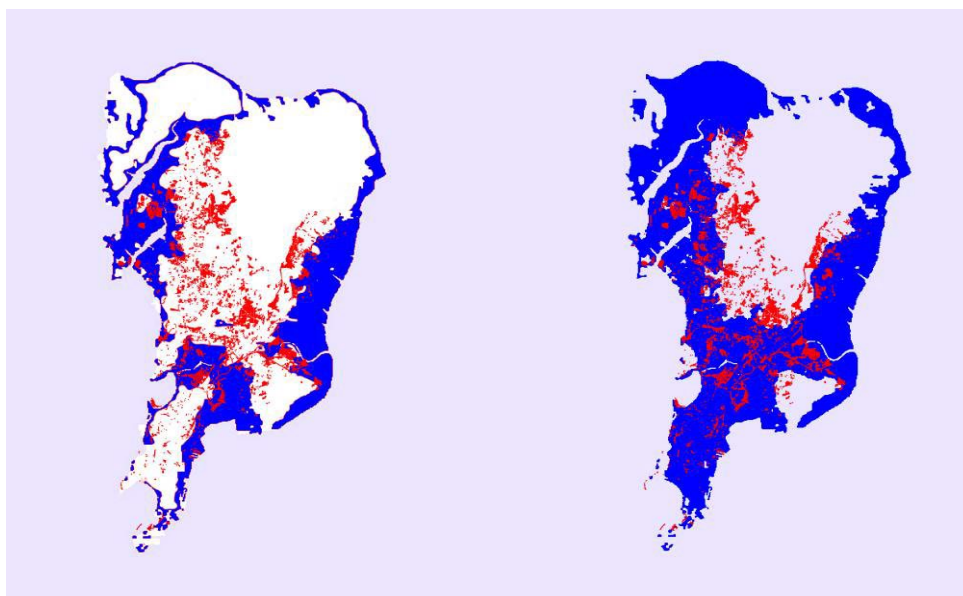
Figure 4. Mumbai flooding in 2050 with current slum population drawing by author after (source info: climate central organization)

Figure 5. Mumbai in a standstill due to heavy rainfall, flooding 2020 – Damaged Houses, Railways, Roads, Hospitals and Infrastructure and more (source: anonymous)

Facts and Figures of Mumbai Neglected Communities

1. Slums and Neglected communities in Mumbai – 55 %
2. Population Density - 300,000 inhabitants per sq km
3. Distribution of religion - 62% Hindu, 30% Muslims, 28% others
4. Economy - Average monthly household Income in Indian rupees – Rs
(14% ----less than Rs 4000, 26%---- Rs 4000 – 6000, 28%---- Rs 6000- 8000, 6%---- Rs 8000 -10000, 5%---- Rs 10000 – 12000, 2%---- Rs 12000 – 14000, 4%---- Rs 14000 – 16000, 6%---- Rs 16000 – 18000, 5%---- Rs 18000 – 20000, 1%---- Rs 20000 – 24000, 3%---- Rs 24000 – 26000)
5. Average property prices - 30,000 to 80,000 per sqm (Cost changes area to area)
6. Origin – 95 % Immigrants and 5% Locals
7. Average household size – 6.5 persons
8. Employment - 20% work outside, 35% Self employed, 30% Wage employed, 15% Temporary jobs
9. Major migrant group from states of India - 37% Tamil Nadu, 36% Maharashtra, 10% Karnataka, 6% AP and Telangana, 11% other states

METHODOLOGY

The PhD research applies speculative design as a method in practice for flooding cities. Speculative design is an evolving design practice that encourages the world to think further ahead and be more comprehensive in possibilities. The speculative design combines design-thinking methods with the story-telling and future-world-building techniques of speculative fiction to produce prototypes of future or experiences. These fantastic artifacts may be in the form of a physical or digital product, video, documentary, book, manual, website, sculpture or something else. Their purpose is to generate discussion, debate, and awareness beyond projected or plausible futures so that designers, companies, and the public not only live with more awareness of how their actions contribute to manifesting and hindering the future, but so they also begin to imagine and articulate their preferred futures.[8]

ADAPTIVE APPROCH

Why? Moving away from flooding or retreat is an option and adapting to the situation and building and living with it is more important. So we need a hybrid method of approach, design and construction. We are using both traditional and new technological methods and techniques in building flooding cities. Humans have a long history of living on the water. Our water homes span the fishing villages in Southeast Asia, Peru and Bolivia to modern floating homes in Vancouver and Amsterdam. As our cities grapple with overcrowding and undesirable living situations, the ocean remains a potential frontier for sophisticated water-based communities.[9]

Land reclamation is not the only method to build on water or flooding cities. Landfilling/land reclamation has many disadvantages: high costs, enormous material needed and wary of soil subsidence, extensive construction time, damages marine ecosystem and environment, and can create more problems in future. Example projects built on water Pulau tekong – Singapore, Central and wan chai – Hong Kong, Palm Jumeriah, Dubai etc. Therefore we have two possible approaches for flooding cities. One way is to build on stilt, and the other is floating structures. Floating architecture (buoyancy force of the water) can adapt, shift and adjust as per rising sea levels and flooding, build easily and quickly, environment-friendly, no damage to the marine ecosystem, protected from earthquakes, easy and fast to make, modular form and flat in nature. Sustainable and ecological building system for Africa's coastal regions by architect Kunlé Adeyemi- Makoko Floating School - An estimated 2,000 people enter Lagos every day, ending up in informal settlements like Makoko.
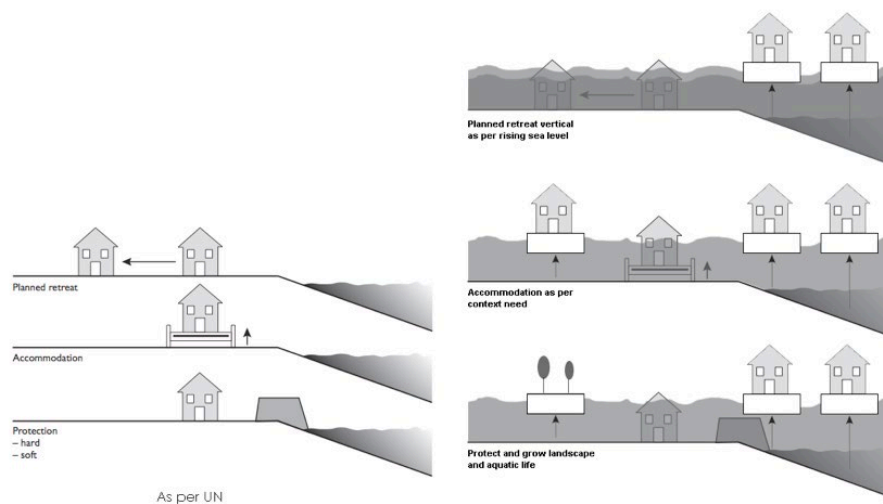
Figure 6. Left drawing by United Nations and right drawing adapting to sea level rise by author

It was founded as a fishing village in the late 19th century by immigrants from the Egun ethnic group. As its population swelled and land ran out, they moved onto the water. Today Makoko is home to people from a variety of riverine communities along Nigeria's coast. Makoko Floating School is a prototype floating structure built for the historic water community of Makoko, located on the lagoon heart of Nigeria's largest city, Lagos. As a pilot project, it has taken an innovative approach to address the community's social and physical needs because of climate change and a rapidly urbanizing African context.[10] Floating structures "Copenhagen Islands" - Australian architect Marshall Blecher and Magnus Maarbjerg from Danish design studio Fokstrot have teamed up to create a wooden island floating in Copenhagen harbor. Complete with a single linden tree, the 20-square-metre floating platform is a prototype for a project called Copenhagen Islands. It was designed to be used as a public space.[11]

FLEXIABILTY

The author uses the term flexibility and defines it as - the ability to be easily modified or shifted, or added. To explain in detail, it applies two things, one on floating structure form and the other in construction. The author speculates typology as *Cell or Molecule* with an area and size – 18, 25, 40 and more, adding cell as area, space-based on family increment, size and growth. Cubic element, which is highly flexible in nature, is used as a design principle. The simple Implementation process and construction of these architectural typologies can adapt on the ground and floating platforms (demands lightweight construction). Good environment and high-quality spaces as per community/social working requirement and conditions (Fisherman, small scale Industries, welding shops, stitching, recycling units and more). Typologies are Climate responsive for ample light and ventilation, social interaction, contact with neighbours (day and night). Open home to outdoor community space, as life occurs mainly on streets, accumulation of squares, courts, terraces and balconies. Courtyard turns individual blocks and chains, and blocks with courtyards are grouped as quarters. Local building materials are used for construction of typologies -Lower-income G+2 (Clay and Bamboo) -Middle-income G+4 (Masonry Building – Recycled, Cavity blocks, Exposed façade, handmade terracotta tiles) - Higher income G+6 and above (Apartments - concrete frame and masonry Structures).
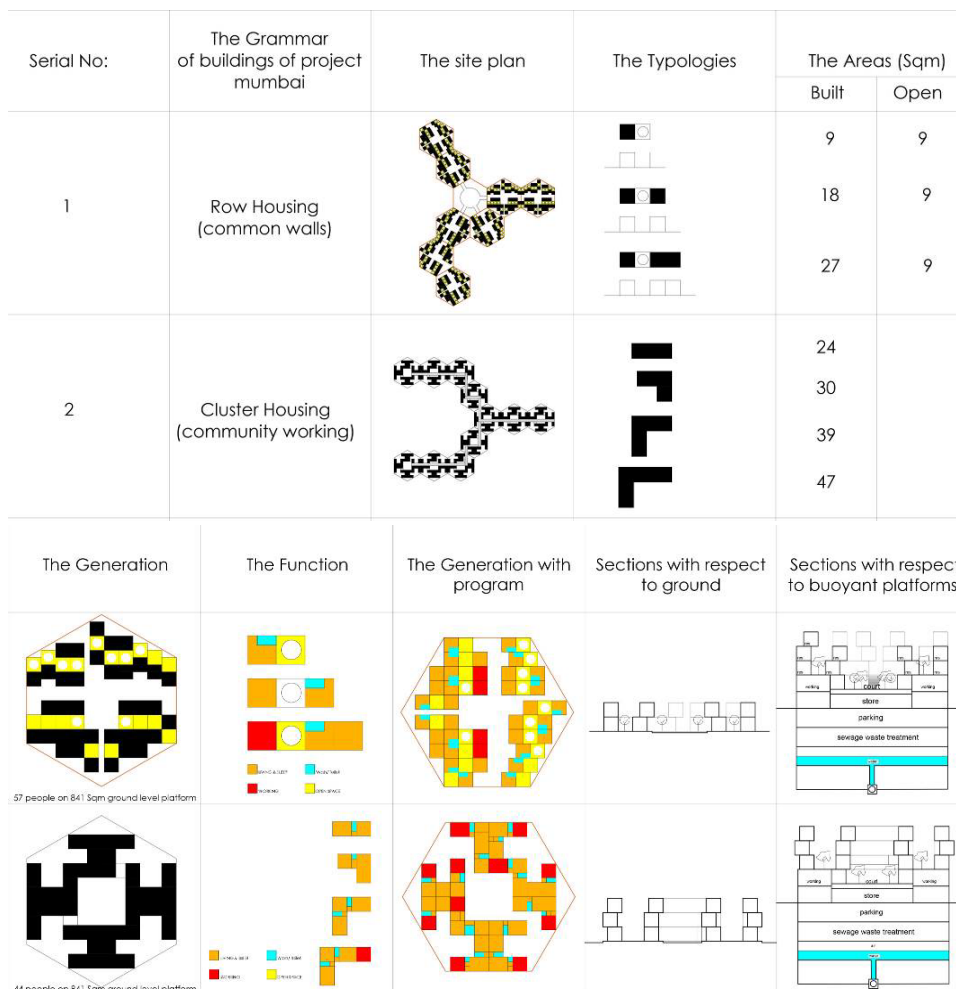
Figure 7. Typologies – area, module, number of people, relation, generation, function and spaces (drawing by author)

GEOMETRY, FORM, STABILITY, MOVABILITY AND BALANCE

Geometry is vital in any architectural design as it is an essential part of structure, materials, space and function for comprehensive design. The author uses a hexagonal form for two main reasons, one for science and the other for flexibility. Science says floating platform needs to be round in nature for balance and stability of the whole structure (metacenter, center of gravity and buoyancy), and hexagonal shape and form is close to circle, due to the six faces of the platform, it's easy to connect one platform to the other vice versa, and additionally, this creates multiple variations and flexibility (Fig-9) in arranging platform for city development. Flexible hexagonal structures are easy to move, adapt, arrange, shift and connect. Significantly climate response and adaptive to flooding situations adjusting to rising sea level, floating platforms can be oriented for better light and wind directions based on Climate.

Speculative Design Sketch by Author
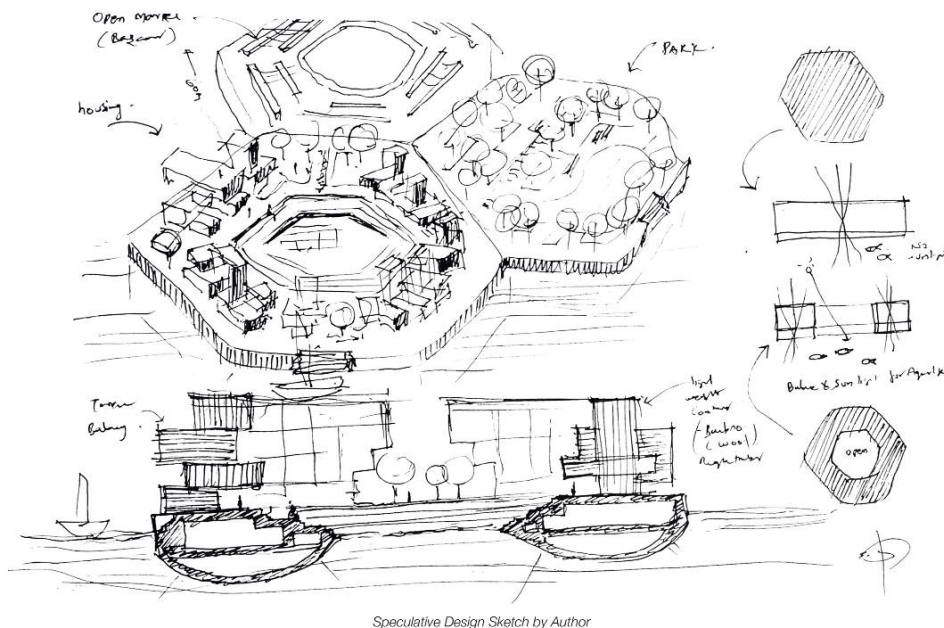
Figure 8. Sketches show cluster/community housing, park, and market (bazar) on hexagonal floating platform with open and build spaces - drawing by author)

ARCHITECTURE, URBANISM AND LANDSCAPE

Mumbai city needs affordable housing and infrastructure due to high urbanization; flooding is creating more significant problems as it costs the town three times more (one for building, two for cleaning debris and three for rebuilding again). So we need new innovative ideas and solutions-Floating architecture is one way. The flexible typologies can grow and adept at the urban scale to become clusters, groups to extend, shift based on city prerequisites. The multiple variations bring flexibility in reconfiguring the city and its growth. It can accommodate and fulfil urgent city needs for present and future desires, i.e., affordable housing for urban poor (fishermen or neglected communities), recycling industries, recreational spaces, public buildings, institutions, working hubs, agriculture, vertical farming and more.

This extended floating city on the water can control and reduce winds, sun, and heat waves from the ocean to the city, converting it to generate solar and wind energy. Few floating structures can collect trash, clean river (methi) from the pollution that connects to the ocean. Floating architecture has the potential to conserve ecology and ecosystem land, marine and aqua life by not polluting and avoiding land reclamation, channeling industry waste inlets to floating filtration structures before letting into

the ocean. Floating agriculture, farming and landscape can control pollution, maintain ecology and create space for recreational activities. It would be an exceptional way to conserve and restore the city's lost environment. These projects can start in small scale at the community level. These would be possible by the support and collaboration with the government, subsidy, and low-interest rates from banks to urban poor. Local people's participation (Students, NGO's, Institutes and others) in building their own community houses, schools, toilets and infrastructure with experts and professionals' support.
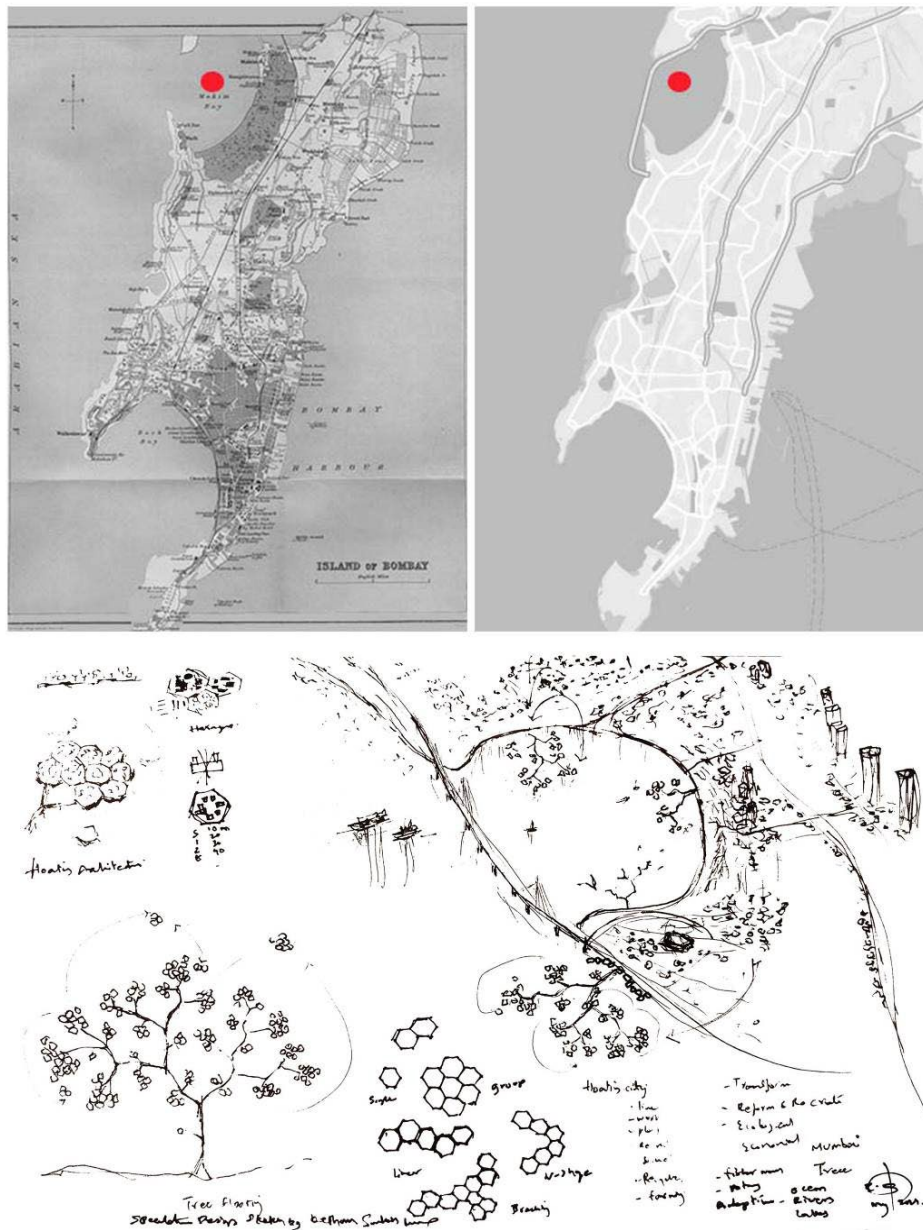
Figure 9. Mahim Bay, Mumbai - Extension of city on water – Sketch Speculative design floating architecture.

CONCLUSION

The PhD research aims to study flooding scenarios in Indian cities and make speculative designs scenarios for possible solutions based on Climate, place and socio-economic realities. Further, these speculative designs are to be showcased to local citizens in the form of exhibitions and offer choices to choose what they need—and modify or improvise the designs based on community's feedback and build along with them (community participation). These can be achieved with the help of government's support in the form of subsidies and loans or sponsored material from construction companies. The typologies mentioned in the paper can be built with lightweight hybrid and local materials with advanced construction techniques. The Hybrid materials and advanced techniques of construction are part of author's research.

ACKNOWLEDGMENT

NOTES

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HOME AMONGST RIGHT ANGLES: CUBE LIVING

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INTRODUCTION

Housing availability/affordability issues have been continuous for much of human history and the architects who seek to rectify these issues have been designing continuously in search of a solution that could even have utopian implications. In the Czech Republic, a strikingly new yet historically inspired prefabricated home was conceptualized by HŠH Architects in 2001 and the prototype project was realized in between 2002-2004.[1] The house is made of a steel skeleton with concrete and glass panels. The building is comprised of 24 cubes with each cube a uniform three meters by three meters. The architects' have approached breaking up the home into clearly defined areas: "Each of the cubes forms a separate unit with its own function."[2] There are implications of functionalism as every cube exists for a reason; this is very provocative considering many people feel pressured and socially obligated to own a 3,000 square foot house with half of the rooms rarely entered. In my paper, I will examine how the *Villa in Beroun*. (Fig 1.) organizes/simplifies space and how it engages with materiality, while considering how it differs compared to Buckminster Fuller's historical designs and New Brutalist aesthetics.

GAMING HOUSING

The design of this home has taken elements from what may appear to be an unlikely source. The architect referred to this design as an "imaginary three-dimensional chessboard,"[3] which shows a playful approach to architecture while considering its mobility. Comparing a building to a type of game is an idea that complicates housing, but has been done before. Buckminster Fuller's Dymaxion (Fig 3.) has a pointed structure atop the home that strikingly resembles a spinning top. Fuller suggests and wonders if buildings could move and spin which creates irony, and merrily questions the viewer's expectations of what a 'home' entails. The image of a top may invoke a childhood carefree attitude and remind the viewer of movement. A spinning top is a whimsical toy that can be played, without restrictions or formal parameters to the game. The *Villa in Beroun* draws inspiration from a very different type of game; *c*hess has associations with numerous rules, yet this design does not give off a bureaucratic air --- it remains looking convivial and open. The villa has multiple similarities to the lower two-thirds of the *Dymaxion*. The villa and the Dymaxion both use shades of gray and black with geometric shapes and lines. The Dymaxion has a large central window as a key design component while the villa features multiple. The villa relatively adheres to typical conventions of housing domiciles being shaped (loosely) around squares/rectangles, but is taken to extremes. The Dymaxion is hexagonal[4] which makes it appear alien-esque, and imaginably strange to organize the

interior. The form of the Dymaxion simply looks like an 'object' (a geometric top with a smidgen of abstraction) rather than a dwelling or home living space.

Figure 1. Villa in Beroun's outside view.

The cubed forms of the *Villa in Beroun* does not follow the logic of a chess game and it does not visually immediately remind the viewer of a chess board. The villa does not follow the typical alternating grid of black and white pattern of chess boards but takes on a randomized sequence that is more reminiscent of Tetris pieces. The shape of the concrete in the right half of figure 1 may depict a chess move, specifically the way the knight game-piece moves in an L-shape; this could be the architects aligning knightly qualities with their design or a coincidence. The prototype villa has twenty-four squares while a chessboard has sixty-four squares. These numerous small choices to remove (and thus differentiate) the architectural design from the object that inspired it allows it to take on an identity of its own. *Villa in Beroun* manages to not overtly look like an 'object' (a chess board) by its clear steel structure and furniture revealed through the glass, contextualizing and reminding that it is indeed a home dwelling space. There is a futuristic sleekness to the form that echoes parts of Fuller's aesthetics. I interpret the *Villa in Beroun* as having drawn inspiration from Fuller because of the playful approach to design that references games and similarities in formal structure with the *Dymaxion*.
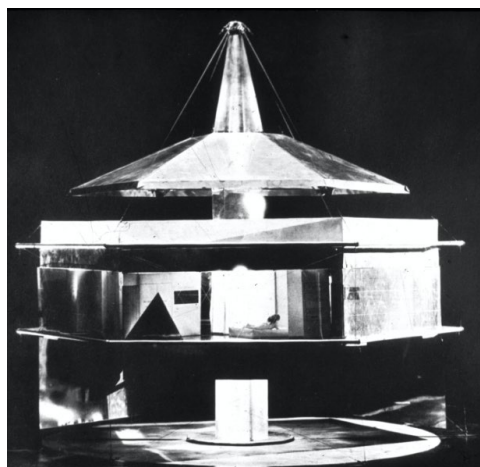
Figure 2. Dymaxion's outside view.

Scalability

The issue of large scale production of housing was investigated by B. Fuller and HŠH Architects, using completely clashing approaches. The villa prototype was created alongside HŠH Architects' imaginings for wide scale mass-production (fig 4.) using the cubes to create a large square grid. This architectural plan shows a clear choice not to be a rectangle as the majority of large-scale contemporary mass-housing structures (sky-scraper apartment buildings) are. The motif of the cube is shown extending somewhat exponentially, suggesting more cubes could be added. The plan for the skeleton of the grid structure does not differentiate between separate families' spaces. Hypothetically, HŠH Architects could use their cube-centric design to create a variety of shapes of structures which could be customizable depending on existing spaces or various needs.
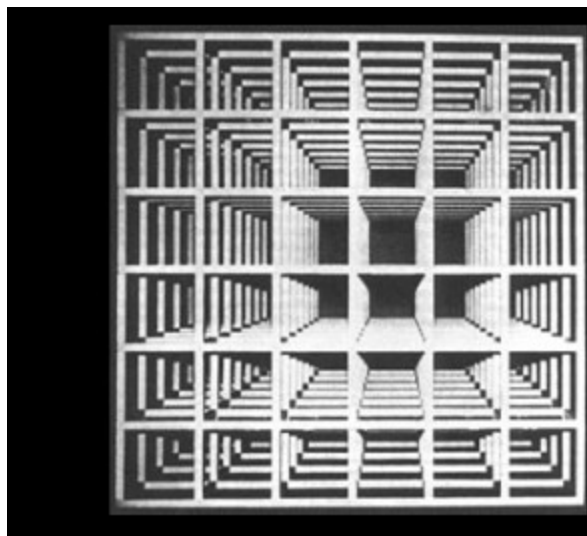
Figure 3. Villa in Beroun Mass Production Design

The design by HŠH Architects is visually organized according to functionality rather than having a predetermined shape/function like Fuller's prefabricated designs.[5] The model of a neighborhood of Dymaxion houses (fig 4.) shows geometric placement and walkways to link the community.[6] Suburbia with identical houses stretching for blocks would undoubtedly be confusing, easy to get lost in and subjectively dystopian. Fuller's plan also antiquatedly assumes access to large areas of land and space between each dwelling that is rarely available (affordably) in the 21st century. Fuller provided groundwork in conceptual 'paper architecture' (and some created works) which influenced aspects of the HŠH Architects' design.
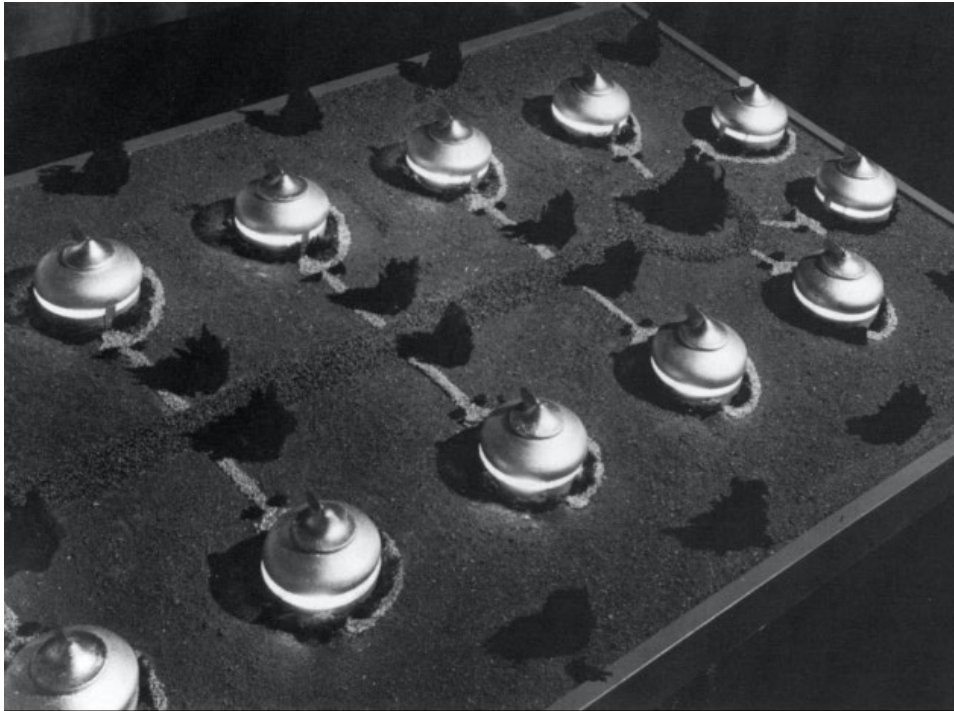
Figure 4. Dymaxion Mass Production Design

Shifting and Sustainable

The villa could be as solid as its materiality suggests, or it can take on malleability: "Square fields are defined as needed by fixed or sliding walls. …No distinction is made between individual fields and their character is determined purely by their contents [7]" The rooms can be altered alongside spontaneous developments in life. This allows for the structure to be altered as the family grows and changes. If a new baby is born or if an elderly relative needs to move in, the walls of the structure itself will 'mold' to fit their needs. This shiftable aspect of the HŠH Architects' prototype does not expect the consumers of their design to have their entire life planned out upon the purchasing their home, as many current real estate practices requires. This is a massive advantage to their design ideology: "With cheap, cool electric lighting, mechanical ventilation, central heating, and the versatility of concrete structure, rooms could be whatever size and shape was needed. The building could fit round the functions rather than the functions having to accommodate themselves to the normal restrictions of buildings. [8]" If a newly-wed couple spends years undergoing the planning/saving process of home-ownership, and then finally buys a conventionally-made traditional three-bedroom home --- they cannot alter their decisions if their perceptions/desires change with time (to *want* five kids, no kids or *want* to invite their in-laws to move in, etc), at least not without extensive preparations. The issue of family sizes fluctuating throughout life cannot be denied or ignored when designing sustainable architecture. Across the housing market in all corners of the world, there are "empty-nester's" with a house full of empty rooms after their children move out as they enter adulthood. What does a middle-aged couple then need/do with a few extra bedrooms? This empty-nester dilemma leads to couples and families moving houses throughout their lifetime. Contemporary standardized housing (and even Fuller's designs) have not been created to grow with its inhabitants, and that is a massive oversight in long-term utility.

SURVEILLANCE

The organization of alternating glass and concrete panels has possibilities for outside surveillance, especially if a prototype was installed in a city. Passerbys would be able to view the entirety of certain rooms. In Fig. 1, the room exposed by a glass wall at the top of the structure reveals a black bathtub basin; this could imply the dwellers of this specific villa have a scenic view before them or that the neighbors are a distance away. This is a startling difference from many contemporary homes with small windows (that usually have their blinds drawn) mere feet apart from their neighbors. When using transparent material as a wall, the social impact must be considered. If the prototype for the *Villa in Beroun* was mass-produced, would every building contain the same amount of exposed and covered rooms?

BRUTALISM DEFINITIONS

To engage in discourse surrounding concrete-based architecture, definitions must be touched upon. Reyner Banham "defin[es] the movement [New Brutalism] in three theses: '1. Memorability as an image 2. Clear exhibition of structure 3. Valuation of material as found.[9]" The relationship between the *Villa in Beroun* and the New Brutalist movement will be examined through these parameters. The villa commands viewers to take a long hard stare at the structure. This building deviates from contemporary architectural norms in several regards which gives it a memorable quality. The structure of the villa is clearly defined (almost outlined) in black as it recedes through the home. The glass and concrete walls, floors and ceilings announce themselves to be a crucial part of the design. The HŠH Architects have rejected huge slabs of concrete to instead alternate with glass and black steel; this stops the building from leaving the impression of imposing monolithic 'fortress.' The form being broken up by the black linearity gives sophistication to the design. The cubes stacked atop and next to each other come together to a rectangle. The interior of the house consists of largely rectangles and squares receding into space. Both the interior and exterior of the design have geometric features which creates a sense of unity. The Beroun villa's interior has sparse walls, with angular shapes in each cube, yet because of how the black skeleton is exposed against the concrete (Fig 5) it creates a feeling of spaciousness and depth rather than emptiness. The materials of *Villa in Beroun* are acknowledged, celebrated and is what makes this design so successful. As Barnabus Caulder fondly explains, "The uniform sobriety of concrete turns out, when you look at it more closely to conceal a subtle gamut of textures and colours, beautiful in themselves and a permanent record of how the building was made.[10]" The concrete of *Villa in Beroun* almost looks like a Rothko painting with its ambient effect on the eye. No two panels of concrete is exactly identical and the artist's hand, and the 'hand of the worker' could be suggested. The texture and slight variations in shades of the concrete is vastly accentuates the design. The villa adheres to Banham's criteria for New Brutalist architecture.

Figure 5. Interior of Villa in Beroun

Masculinity of Brutalism

Naturally, different art historians define what terminology entails differently. This statement: "Brutalism is a controversial, muscular term for a controversial, muscular style.[11]" lead me to ponder, is this true for the Beroun villa? Whether such a subjective term like 'masculinity' can be applied to the Beroun villa is debatable but the aesthetics look very neutral. The masculinity of a warehouse-like or fortress-like building is not present in the Beroun. There are no militaristic or battle-ready implications in the design. The lack of architectural ornamentation could be shallowly interpreted as 'unfeminine' at a glance but the warmth of the wood in the interior and the cool-toned almost blue-gray concrete comes together to create a truly gender-less building.

CONCLUSION

The *Villa in Beroun* was influenced and inspired by New Brutalist aesthetics and the ideas of Buckminster Fuller's Dymaxion. The inspiration from toys and the geometric shape is inspired by the Dymaxion. This prototype residence modernizes Brutalist materials and aesthetics to suit 21st century sensibilities and taste. The HŠH Architects took a formulaic approach to design where functionality could be constrained in a uniform cube, but the walls still have the potential for adjustability. A building designed to go through re-purposings has more potential to last entire lifetimes and adapt to mass-production. *Villa in Beroun* adheres to Banham's criteria to be a New Brutalist structure, but it deviates in appearance from traditional historical Brutalist works. The color scheme of the grid and walls allows the structure to look open, friendly and neutral rather than a hostile, closed-off fort of concrete.

NOTES

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TRANSFORMING A HIGHWAY OVERPASS INTO A PARK: THE CHEONGGYECHEON'S SWITCH FROM INFRASTRUCTURE TO URBAN AMENITY IN SEOUL, SOUTH KOREA

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INTRODUCTION

Efforts to improve and restore urban landscapes that have been damaged by the processes of urbanization and modernization are reflective of our contemporary concern for developing sustainable and resilient solutions to the problems of environmental damage and climate change after years of damage wrought by industrial and manufacturing processes that were located in city centers. Due to the problems of aging infrastructure, pollution and the effects of climate change, the imperative for design solutions that will protect and ameliorate the environment has increasingly become the standard instead of the exception.[1] In response to the pervasive significance of sustainability in the design of built environments, the discipline and profession of landscape architecture has emerged at the forefront of progressive ways to envision and create a healthy and resilient built environment, in the form of landscapes. The high prioritization of landscape design in urban settings illustrates city leaders' concerns and aims to improve urban public amenities and thus create more resilient and livable cities. One such example of this effort is the Cheonggyecheon project in Seoul, South Korea that was completed in 2005.

Cheonggyecheon Project Background

The Cheonggyecheon linear park and reconstructed stream in Seoul, South Korea opened to the public in 2005 after a twenty-seven month construction period that began with the demolition of an aging highway overpass that had dominated the site since its construction in the 1970s. Rather than rebuild the overpass, the city of Seoul decided to turn the site into a pedestrian green space with a reconstruction of the stream at its center. The project's speedy transformation from a work of infrastructure to an engineered, reconstructed stream and greenway in the city's central business district was met with both acclaim and criticism. In the nearly twenty years since the project's conception and completion, the project has become one of Seoul's popular public spaces and landmarks. Once a part of the city yet removed from the regular framework of street and sidewalk that intertwines around the high-rise buildings and mega-blocks of the city, the Cheonggyecheon allows the pedestrian to have a respite from the urban network while still fully immersed in it, whether the visitor takes pleasure in the visual nature that has been built there, or just in the dedicated pedestrian space (Figure 1).

Figure 1. Middle section of the Cheonggyecheon, near Pyeongwha Markets.

The project is divided into three sections, thematically, geographically, and logistically by project teams, which allowed for the design-build project to progress at an accelerated schedule.[2] Each section had a different design team and a master landscape architect for the entire site who was tasked with directing the teams to produce a project that had three distinct sections but maintained continuity. The reconstruction area covers 5.8km, while the stream's convergence with the Jungnangcheon stream at the eastern end brings the length to a total of 11km as the two streams flow into the Han River.

The project in its early stages was met with a mixture of skepticism and opposition for multiple reasons. These included its anticipated cost, the dramatic changes that would be required in the urban design of the neighborhood as the highway ramp would give way to the pedestrian channel with the anticipated accompanying increase in traffic congestion, and the subsequent need to restructure and improve the public transportation system as part of this new urban plan, and finally, perhaps triggering the most controversy and protest, the removal and displacement of the surrounding area's businesses and residents.[3] The area vendors, for instance, were forcibly removed by the police first to a new market in Dongdaemun Stadium (which itself was demolished in 2007[4] and has been replaced with the modern Dongdaemun Design Plaza) and then later relocated to another nearby neighborhood.[5] Despite the criticism and protest, the resulting changes to the urban landscape have been generally accepted as improvements, particularly the reduced congestion and pollution of the area and the increased level of ridership of the city public transportation services, which has resulted in a decrease in the amount of automobile traffic in the area.[6] The city government cites data indicating the environmental improvements of the Cheonggyecheon area, such as cleaner air, reduced noise and heat-island effect, and an increasing number of fauna and flora in the space.[7] However, criticism of the project continues, especially concerning the economic and environmental cost of maintaining the site, since the water is pumped from the Han River, relying on technological advances to do what nature cannot.[8] Without this pumped water, the Cheonggyecheon would be a dry streambed for most of the year, thus devoid of much of the environmental benefits and sensory experience that the space provides. Plus, returning the site back to its identity as a stream was pivotal to the reconstruction project.

Historical Background of Cheonggyecheon Stream and Site

The historical significance of the Cheonggyecheon stream reaches back to the founding of the city of Seoul (then called Hanyang) during the Joseon dynasty (1392-1910)[9] and its basis in geomancy and ancient Korea's historic belief in the importance of building harmony between the natural and built environments. The Joseon dynasty was the last Korean dynasty before the 40 years of colonization by Japan, during which time Korea endured a simultaneous condition of the beginning spurts of modernization mixed with colonial oppression. The years following independence gave way to the division of the peninsula into North and South Korea and their competition to advance economically. The Cheonggyecheon existed as a stream during the colonial period and until the rapid modernization period of the 1960s.[10] Yet much of the image and memory of the site from the Joseon era has been the inspiration for the reconstruction project and the historical referent for many of the historical markers, art installations and narratives that the new project has evoked and cited, at least in the first, most visited part of the park. Although one of the project designers noted that the project was conceived with the idea of giving equal representation to the layers of history of the Cheonggyecheon,[11] the apparent predominance of the Joseon dynasty period in the project's historical narrative illustrates the significance of reinforcing the dynastic heritage and historical connection of the Cheonggyecheon with part of an origin story in Korean history.

The founding of the capital city by King Taejo, was based on its auspicious geographical and topographical characteristics that promised protection and prosperity for the dynasty.[12] The surrounding four mountain ranges that surround the city and the central valley with the Cheonggyecheon stream at its center into which water flowing down from the mountain ranges would flow freely, benefitted the natural ecology of the movement of water from the mountains into the city, as well as the flow of spiritual energy (*ki* or *chi*) of the site (Figure 2).

Figure 2. Replica of map showing Hanyang, the ancient capital of the Joseon Dynasty, installed into Cheonggyecheon wall. The spine of the stream network at center shows the original Cheonggyecheon stream.

The significance of the stream at the bottom of the mountain valley was that the flowing water would ensure that this spiritual energy would stay in the valley and not scatter away.[13] The geographical condition of the site can be compared to the social order in that the most significant concern for the Joseon dynasty was the king and the royal family while the common people served the king in order to help maintain his rule. The advent of modernization in South Korea signaled great changes in much of the enduring social and political structures of the dynastic period, resulting in a paradigm shift not only in the political system but also in changes in the built environment and generally, the focus turned to economic growth and accelerated industrialization in pursuit of economic prosperity.

THE CHEONGGYECHEON AS A REFLECTION OF SEOUL'S MODERNIZATION

The Cheonggyecheon site's several transformations reflect the succession of damages and modern advances the city and country underwent in the 20th century. After the Korean War (1950-1953), the stream had become a polluted sewage water channel surrounded by shanty houses filled with people who had flocked to the city from the outer provinces. In order to control the stream and erase a damaged and blighted space, the stream was covered over and turned into a road. About a decade later, during president and military dictator Park Chung-Hee's leadership and his rapid modernization project to lift South Korea out of poverty, a highway ramp was built over the road as the area became surrounded by manufacturing and commercial buildings. [14] The central area of Seoul became representative of a growing modern, urban landscape but now lacking the visible reminder of the natural landmark that been a significant point of the city's geography.

It is important to note that these progressive changes to the built environment surrounding the Cheonggyecheon's site were not reflective of the entire site of the reconstruction. There were parts of the Cheonggyecheon site that remained a heavily polluted stream adjacent to a makeshift neighborhood full of shanty houses into the 1970s, away from the city center, where the current Cheonggyecheon ends near the eastern side of the city (Figure 3).

Figure 3. Image dated 1961, installed at Cheonggyecheon wall, showing shanty houses built along Cheonggyecheon stream.

Just as the site's history holds layers of historical change in time, the length of the site during Seoul's rapid development years of the 1960s- 1970s illustrated that historical changes could co-exist at any one given time. Where one part of the site was modern, with cars speeding onto a highway ramp, flanked by commercial buildings where clothes and other light industrial goods were being

manufactured, another area was crowded with shanty houses, where even taxis would not, or could not, come near. [15] By the late 1990s and early 2000s, as South Korea's economy grew, the Cheonggyecheon highway ramp that had once been a harbinger for the advances of modernity for Seoul in the 1970s, had become the center of a declining neighborhood that was nevertheless congested with cars and people and had become representative of urban squalor (Figure 4). More importantly in terms of safety, the highway ramp was in great disrepair and in danger of collapse.[16]

Figure 4. Image dated 2003, installed at Cheonggyecheon park wall, showing Cheoggyecheon overpass and street.

From overpass to linear park: Cheonggyecheon as Seoul's continuation of development and progress

Park visitor: "It's very developed now. Before the restoration, it was a highway ramp with cars on top… but it cost a lot of money. It still costs a lot of money… what comes first, our country's economic development. Is that the priority?"

The decision to demolish the ramp and turn it into a park with a reconstructed stream at its center follows the trend of several similar projects around the world, such as the High Line in New York and Olympic Sculpture Park in Seattle, that resulted in urban revitalization by transforming an infrastructural or industrial space into a work of landscape urbanism and public amenity for city inhabitants. Yet this rebuilding and reinsertion of visible nature into the city, the act of reviving a stream that had been buried for over half a century, could not have been achieved without the aid of technology. Each day, 120,000 tons of water is pumped into the Cheonggyecheon. Of this amount, ninety-eight thousand is from the Han River, and twenty-two thousand is from the underground water source.[17] for the Cheonggyecheon, the mechanical means of pumping water from the larger Han River because the site of the original Cheonggyecheon does not have enough flowing water most of the year. The decision to use pumped water from the Han River remains a large part of the criticism against the project since it is costly, and the mechanical process produces greenhouse gases, which contradicts the benefit of sustainable design. However, the idea and identity of the Cheonggyecheon, in spite of its most recent historical incarnations as a road and highway ramp, remains indelibly a water channel, and even for those who have no memory or knowledge of the site's past, what gives visitors interest, delight, and much of the environmental benefits of the space comes from its flowing water (Figure 5).[18]

Figure 5. Third section of the Cheonggyecheon as it approaches convergence with another stream and the Han River.

Designer: "It wasn't about how to recover nature, but instead the main issue was about how to make nature come into the city, and how to make nature and the city come together."

"... the most important thing, was that whether this was true nature or not: how could we reanimate nature's function, that was the most important thing. And with that, the people could feel and experience how good nature in the city could be. Because before, Seoul didn't have lots of parks in the city at the time... like Seoul Forest, lots of parks were being made, those all happened at once. So, in this large scale, in busy, congested Seoul, more and more, nature was coming into the city, the important thing is that the people started to acknowledge that, ... and people thought it was important."

Although the natural element of the Cheonggyecheon project differs substantially in form and use from the urban renewal projects that were typical in the 1960s and 1970s in most Western countries, which prioritized the use of buildings and infrastructure to change the city, the Cheonggyecheon reconstruction has had similar ramifications for the changes in the urban landscape by stimulating new real estate developments, gentrification of the area surrounding the site, and the displacement of its former occupants. In this sense, the new Cheonggyecheon has effected a transformation of the site in its physical, social, economic, and cultural dimensions. The fact that the project is a work of landscape architecture, with a simultaneous use as a public park and as a storm water channel in times of flooding, has in some ways softened and obscured the drastic and violent change made to the urban landscape and its effect on the people of the city. Nevertheless, in a city where many people live and work in high-rise buildings without a lot of outdoor space, a linear park like the Cheonggyecheon provides needed respite from the city's hyper-urban surroundings.

THE CHEONGGYECHEON RECONSTRUCTION OF HISTORY, NATURE, AND SEOUL'S IDENTITY

Park visitor: "...compared to fifty years before, it's so much better, the air is nice, the water is good, clean. Taxis wouldn't come here [in the past], because it was foul, the road too... it was dirt roads. It's really developed now."

By using specific and distilled ideas of history, memory, and nature in the place-making project of the Cheonggyecheon, the city of Seoul has demonstrated how a new landscape project can be designed to

re-formulate and retell the narrative of the city's history, bridge the past with the city's future, and build upon a new conception of the city as an environmentally and pedestrian- friendly city that offers a variety of public green spaces. The project's removal of the highway overpass resulted in the transformation of the perception of the Cheonggyecheon site from a place dominated by hardscapes and oriented for vehicular traffic into a stream and pedestrian promenade, illustrating the process of erasure and the creation of a new place identity. While the park is located at the site of a historic stream, the new stream is a stark contrast to the old stream and is instead an expression of the city's continuous development and embrace of the new (Figure 6).
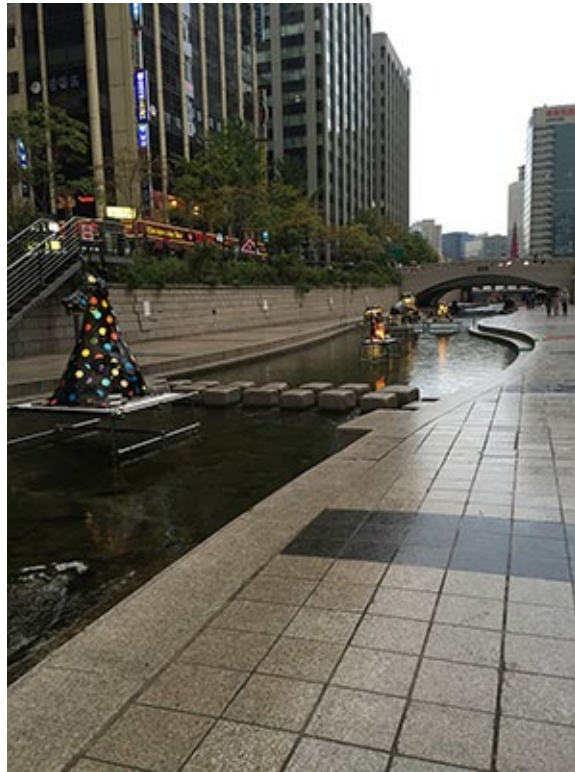
Figure 6. First section of the Cheonggyecheon, with the Cheonggye Plaza in the distance.

As the centerpiece of the project's expression of progress, the reconstructed stream highlights key points for the articulation of Seoul as a progressive and advanced city. The technologically supplemented flowing water, the treatment process that cleans it and makes it safe for human contact, and the control of stormwaters during floods illustrate how the new stream has been designed and maintained to produce desired effects and impacts in the city and as a public landscape. The rhetorical description of the Cheonggyecheon as a rebuilt historic stream serves to highlight the contrast between the old and the present stream and city.

City official: "… the first thing that's most important is that it's [Seoul] changed from a focus on automobile traffic to where people can live, a pedestrian-oriented city… before, from Seoul Station to Gyeongbukung, people could not cross the street, [at street level], there was no way to cross, either they had to go by an elevated ramp, or underground, or they used cars. Now, they've built all crossing areas, it's become people-oriented generally."

The recreation of the Cheonggyecheon has resulted in a different kind of transformation of the subjectivity of the Korean people, perhaps as yet not as obvious as the more aggressive changes that were made in the early years of South Korea's independence. Nevertheless, the reconstruction project has caused a transformation of not only the area surrounding the park but also to the streams in other

parts of the city and beyond. Other streams and rivers around the Seoul area, within and in the expanding suburban reaches of the city, have been redesigned with walking and bicycle paths and areas where exercise machines have been installed so that area residents can enjoy the landscape and take in some exercise for the benefit of their health. The spaces in turn have often become the major identifying landmarks for that town or neighborhood. Additionally, from the observed activities of the park's visitors and from interviews with them, the park's visitors responded with a resounding affirmation that the new Cheonggyecheon has improved the city and introduced the kinds of activities and enjoyment of the city that had not been possible before the reconstruction project. By reconstructing a long buried stream and allowing the public to explore the city in ways that had not been possible when the Cheonggyecheon area could only be traversed in an automobile, the city of Seoul has created a space for its city dwellers and visitors to become more cognizant and appreciative of the importance of urban park spaces. And the city has shown how access to these spaces not only improves the built environment of the city but also its livability and identity.

NOTES

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INFRASTRUCTURE AS PUBLIC SPACES: INFORMAL SETTLEMENTS AND USAGES IN THE WENRUI VALLEY

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INTRODUCTION

In 1965, Charles Moore's work "You Have to Pay for Public Space" brought to light the gradual disappearance of traditional dedicated public architecture in Los Angeles, a transformation driven by the region's post-war shift towards car-centric urban development and individual housing nested in their Arcadian environment[1]. Moore's analysis identified two emerging forms of public spaces: the meticulously designed yet privately controlled environments of Disneyland, and the sprawling network of freeways, anticipating Reyner Banham's "Autopia"[2] and echoing the critique formulated by Lewis Mumford on the impact of highways on the traditional urban forms in post-war America.[3] Rooted in the Western mythos of public space that traces back to antique urban forms such as the Roman forum and Greek agora, Moore underscored the intrinsic link between the city as a political entity and the physical manifestation of civitas found in public squares, the connection between the urban built form of the "Ville" and the Social activity of the Cité."[4] The automobile's impact on the Californian urban landscape marked the end of this traditional definition of public space and its corollary public architecture. The street corridor, where coexisted different types of circulation, public activities, and architecture gave way to monumental infrastructures, full-blown architectural artifacts.[5] freeways, which became new monuments, disconnected from any pedestrian public spaces, replicated as a simulacrum in privatized theme parks for Homo Ludens: Disneyland.

The infrastructural revolution that China has been undergoing since the onset of Reform and Opening up, with an acceleration in the last decade, differs significantly from the post-war American experience in terms of scale and socio-historical context.[6] China's unprecedented investment in infrastructural projects has propelled it to a global leadership position within just a few decades, particularly evident in the extensive network of expressways and high-speed train tracks. The new infrastructural networks redefined the territorial patterns, altering the relationship between settlements and transportation. Our research delves into the city of Wenzhou, situated in Zhejiang province, which encountered delays in its infrastructural development due to its geographic isolation. Until 2000, this region, much like other areas in Jiangnan, predominantly relied on waterways for transportation within the urban area and across the broader province.

The first section will explore the interplay between the historical water-based transportation system, the arrangement of settlements, and the primary public spaces. The second part will examine the emerging landscape of new infrastructural developments, examining the novel forms of public spaces that have emerged around this modernized framework. The last section map the continuities and disruptions in the transition between old and new systems.

Following Chen and al.'s definition of public space in the *Palgrave Encyclopedia of Urban and Regional Futures,* we will examine the varying degrees of "publicness" within these contexts. Our analysis will explore social uses, activities, accessibility, and land ownership.[7] Furthermore, we will trace the transformation from the traditional utilization of space, characterized by an intertwined relationship between housing and communal life and where boundaries between public and private domains are blurred, to a market-driven conception of space that distinctly demarcates public and private property.

WATER AND PUBLIC SPACE

Wenzhou is located in the mountainous region of South Zhejiang. Like many cities along China's east coast, its principal transportation system consisted of a network of canals until the late 20th century. Its harbor was its primary link to the rest of China and the world. The historical city is situated on the banks of the Oujiang River, and the Wenruitang, a hybrid waterway system comprising rivers and canals, connects Wenzhou to the city of Rui'an. Its main stem runs north-south while tributaries and branches run perpendicular to the trunk, creating a gridiron covering most of the plain around Wenzhou. Looking at an aerial picture from 1960 (Figure 1), we can see the central character of this transportation system. The settlements, defined by their high built density, are clustered along the water network, either on one bank or two banks, giving the space in front of the water different urban qualities.
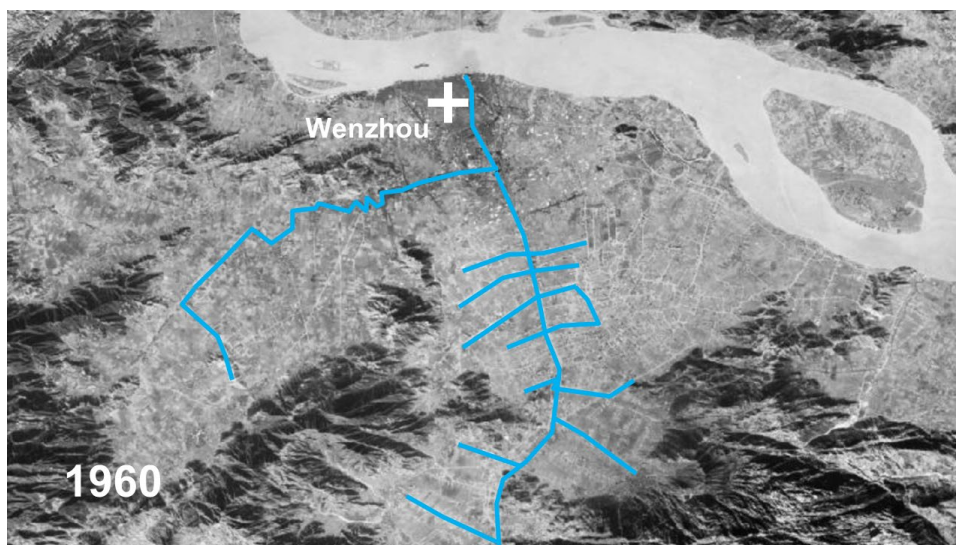
Figure 1. Satellite Picture of Wenzhou and the Wenrui Plain, 1960 from https://tdt.wzmap.gov.cn

According to Heng Chye Kiang, the Western concept of a "public square" doesn't have a direct parallel in Chinese urban history. However, he identifies the street/market (commercial street) as the "quintessential public space in Chinese Cities" at least until the end of the imperial era.[8] In addition, he identifies the market and the temple courtyard as other public spaces. Given the abundance of water streams and canals in the Zhejiang region, areas surrounding waterways take on the role of primary open spaces in villages and urban settings. Social activities and private uses such as washing clothes or drying grain blur the distinction between public and private realms.

Ronald Knapp has described these spaces between dwellings and waterways in Northern Zhejiang water towns in his study of Zhejiang vernacular architecture.[9] In a study of two of the most well-known of these water towns, Zhouzhuang and Wuzhen, situated at the border between Jiangsu and Zhejiang, Jeffery Wenji He and Mark Henwood show how the public spaces as "related to the

waterways. Situated at regular intervals within a network of narrow lanes and alleys, such "pocket spaces" served as a variety of communal functions."[10] Following Yong Zhehua's observations, they describe Zhouzhuang's commercial heart by the "links between canals, piers and bridges, and open spaces."

Figure 2. Housing in Wangzhai Village, Wenzhou. Drawing Xinyi Ye.

If they share many attributes with their northern counterparts, the settlements in the Wenzhou region differ at various levels. Examining the case of Wangzhai village (Figure 2), located in the southern urban fringes of Wenzhou, we can see that the urban structure follows the topography of the site and that a series of parallel streets running east-west replicates the water stream running north-west south-east. On the street level, articulation between public space (the street) and private space (the house) becomes evident when looking at the south-facing courtyard. Doubling the house's footprint, these courtyards serve as the primary living space. Enclosed by low walls, the courtyards visually extend the street while exposing family activities to a certain degree of public view.

Similar dynamics between the more private space of the family and the more public circulation areas can also be observed along the waterways. Taking Nanbaxiang, a double-banks settlement, we can trace a variety of overlapping between public and private usages of the shared space (Figure 3).

When the river is sufficiently wide, there is a setback between the housing and the water, providing enough space for vehicle circulation. Nonetheless, this strip also serves as the house's principal outdoor space, similar to the south courtyard in Wangzhai. This indeterminate space overlap and juxtapose functions, temporarily, such as public or private gathering, food drying, and circulation, or permanently such as clothes hanging or small vegetable gardens along the water edge.
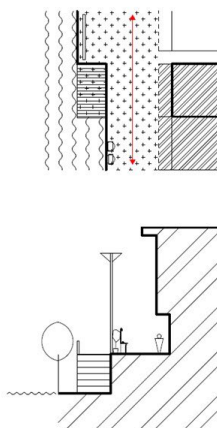
Figure 3. Circulation Space in Nanbaixiang Village. Drawing Yining Gu and Xinyi Ye

Every fifty meters or so, direct access to the water is provided for cleaning activities (laundry, dishes, and so on), thus reinforcing the public nature of the waterfront.

When the space in front of the houses is large enough, multiple uses can happen: the pocket gardens along the water transform into actual public gardens, complete with benches and pavilions, and the central circulation area can host social gatherings, as exemplified by the construction of the dragon boat (Figure 4) – a communal endeavor directly linked to the water.
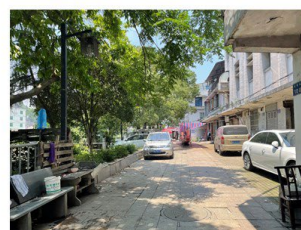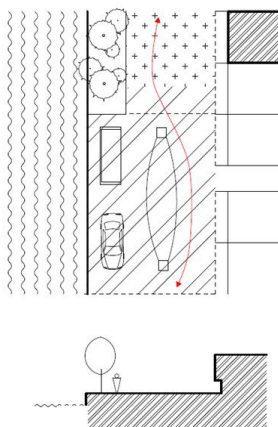
Figure 4. Circulation Space in Nanbaixiang Village. Drawing Yining Gu and Xinyi Ye. Pictures Vincent Peu Duvallon

A bit further, homeowners erect additional structures along the water's edge to accommodate migrant workers recreating a traditional street corridor where both sides belong to the same owner giving the street a private quality despite its public access.

When the width of the water stream narrows, the houses tend to extend right up to the water's edge, effectively imparting the qualities of a street to the waterway itself. In Figure 5, each homeowner expands their house by adding a terrace above the circulation space. Those terraces serve as a private courtyard atop the public pathway, transforming it into an arcade. This arcaded space is wide, sometimes spanning up to four meters, covered intermittently with terraces.

Figure 5. Arcaded space in Nanbaixiang Village. Drawing Yining Gu and Xinyi Ye.

In the Figure 6 case, similar to the water towns in the north, houses are constructed along the water's edge, featuring a slender arcaded space on the ground floor (typically less than two meters in width). An example of this can be found in Wutian village, in proximity to Nanbaixiang.

This series of examples shows an organic interplay between the waterway and open spaces. These spaces offer a broad spectrum of flexibility, accommodating private and public use.
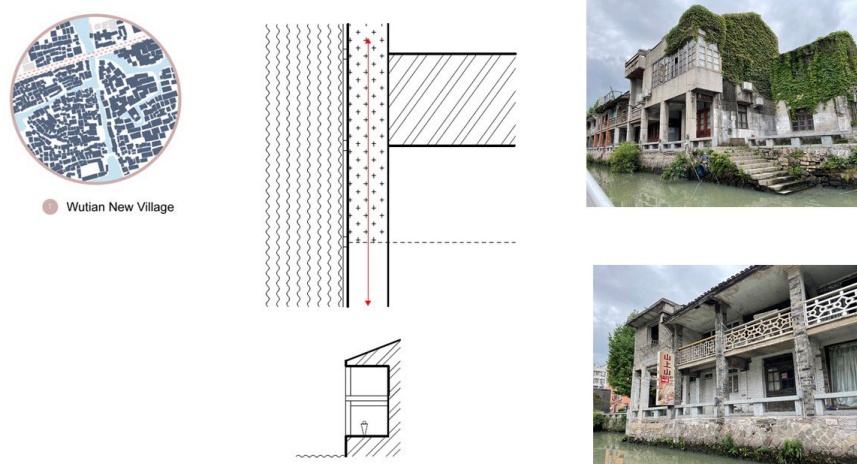
Figure 6. Arcaded space in Wutian Village. Drawing Yining Gu and Xinyi Ye. Pictures Vincent Peu Duvallon

NEW INFRASTRUCTURES AND PUBLIC SPACE

The rapid urbanization that commenced after 2000, and gained momentum, especially after 2010, resulted in the demolition of most historic settlements along the Wenruitang. By examining the village of Liaoqian, located on the southern periphery of Wenzhou's urban footprint, we can observe how the "tower-in-park" model has supplanted the traditional urban fabric and its public spaces once found along the waterway. Ubiquitous waterfront parks have replaced these local social spaces.
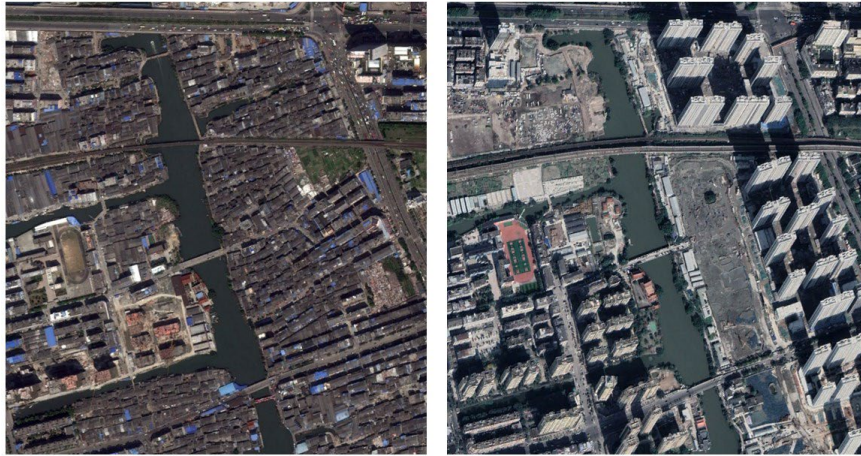
Figure 7. Satellite picture of Liaoqian Village in 2010 (left) and 2020 (right), Google Earth.

 With the new infrastructural system came a series of new types of public spaces disconnected from the local community: the shopping mall and the large-scale public park. This trend bears a resemblance to Moore and Mumford's depiction of Los Angeles in the 1960s, where the introduction of car-centric infrastructure led to a territorial fragmentation into privately-owned, mono-functional enclaves such as housing compounds, shopping districts, office clusters, leaving in between a functional no-man's-land. The commodification of public space unfolded alongside the disconnection between housing and circulation as part of the modernist credo. To paraphrase Lewis Mumford, the "cloverleaf"[11] became this new landscape flower and freeways the new form of public architecture in these urban fringes.

Villages are being demolished along the waterways to make room for the car-centered generic city that turns its back on the river. The formerly public waterfront is repurposed into private parks in the backyard of residential communities or fragmented portions of public parks catering to the newly urbanized population. More recently, a growing awareness of heritage loss has prompted local authorities to rebuild a fictionalized rendition of the waterfront, drawing inspiration from the imagery prevalent in northern Zhejiang.

In Wutian village, the eastern bank has been torn down and reconstructed in a generic modern interpretation of Jiangnan architecture. This picture-postcard simulacrum stands opposite the actual historical settlements on the western bank, which as far have been largely preserved. This new urban redevelopment is carried by a single real estate developer, effectively transforming the village into a commercial district, consequently converting erstwhile public spaces into retail areas.

The waterfront design projects are endangering the existing landscape through what French philosopher Alain Roger has termed "artialisation in situ." This concept involves the material alteration of the existing conditions to imbue them with an attractive, picturesque, and charming appearance – essentially a form that aligns with recognized positive aesthetic qualities.[12] This approach distances the former rural population from the space, crafting an image tailored to the urban population.

CONTINUITIES AND DISRUPTIONS

Before the aforementioned profound transformation of the built environment – involving the demolition of settlements and their corresponding social spaces – the early road network developed in the 1980s and 1990s during the rise of individual automobile usage in Wenzhou has been coexisting with the historical territorial pattern. The abrupt superimposition of the new infrastructural grid over the preexisting ladder pattern of the water network resulted in a significant disruption to the continuity

of public spaces while giving way to new forms of spatial practices at the junction between the two networks.

Under the bridges, the range of uses for these covered spaces varies from informal parking lots to extensions of existing social areas. In Nanbaixiang village, for instance, where Xixiang road crosses the Wenruitang, the Baixiang bridge offers additional covered public space to an already central socializing area (figure 8). Adjacent to the old wharf – traditionally the main gathering space of the village in the Wenrui plain – a concrete pavilion and a centuries-old banyan tree frame the site. While the bridge offers additional covered gathering space, it also acts as a boundary between the existing public area and the main adjacent automobile road, thereby restricting its accessibility. The bridge creates a threshold for the waterfront public space while offering for playing chess or benches for gathering.

Figure 8. Juxtaposition of the wharf and the Baixiang bridge in Nanbaixiang Village.

However, the spaces beneath the bridges are often enclosed for private use. Under the Lonkang bridge, fences have been erected on both sides of the road to create a gathering center for the elderly. Beneath Hetang Road, an indoor private space has been set up while maintaining a passageway behind it. Under Wenzhou Avenue, the space has been completely enclosed and privatized, disrupting the waterfront's continuity. Adjacent to the Jingdeng museum, access to the area beneath the bridge has been sealed off with a fence and door, repurposing it for storage.
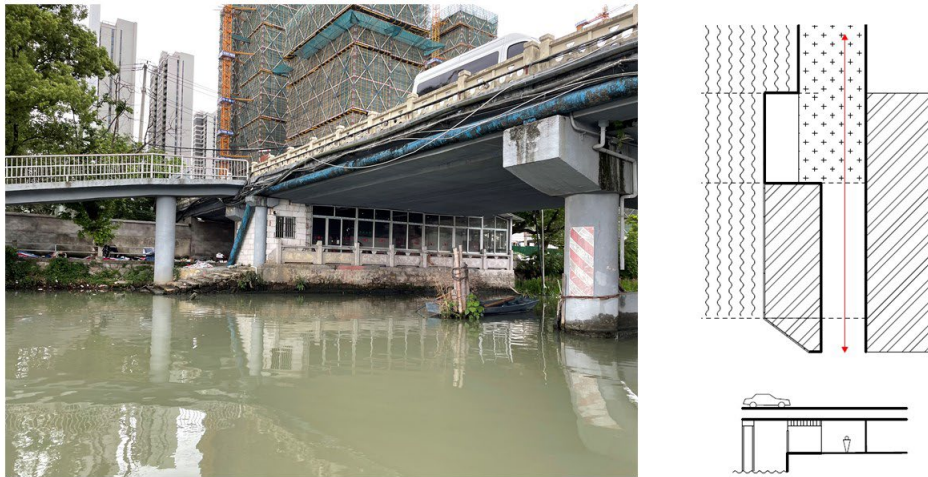
Figure 9. Hetang road crossing the Wenruitang. Drawing by Xinyi Ye.

The case of the Jindeng Museum is a compelling alternative to the full-scale privatization of the waterfront. It represents one of the initial projects designed along the river as a new kind of public space managed by a private stakeholder. In this instance, the government leases the land to an investor tasked with developing a public cultural program. Here, the investor has established a museum to showcase his collection of architectural artifacts obtained from demolition sites across the Wenzhou Area. More than sixty percent of the site is open and encompasses a park, a public square, a tea house, and a historic hall. These spaces often serve as venues for temporary events, markets, and fairs, reminiscent of the traditional temple fairs organized within temple courtyards during the Qing and Ming dynasties in China[13]. The popularity of these events has led to an expansion of the space, with its influence extending to the adjacent bridge and roads, which become vibrant public spaces during these fairs. The public success of the Jingdeng Museum and its impact on its vicinities prompted the construction of a series of small museums along the water following the same recipe; however, none of these museums achieved the same level of accessibility and openness as the Jingdeng Museum.

CONCLUSION

The infrastructural revolution that transformed Wenzhou's landscape and reshaped its public spaces, while it can be partially compared to the post-war changes in America, differs across various aspects. Firstly, an indigenous network of public spaces existed, predating the expansion of the automobile road system. Secondly, the development of modern infrastructures wasn't exclusively tailored for automobiles; it occurred concurrently with the establishment other forms of transportation, including light rail networks, high-speed trains, and Bus Rapid Transit systems, while also partially retaining water transportation. As Walter Benjamin demonstrated, market dynamics emphasizes the separation of public and private realms in new developments.[14] However, specific original social spaces have been retained alongside the water network, bringing with them their unpremeditated, unforeseen, and spontaneous qualities. This phenomenon, described by Franck and Stevens as the "looseness of Space," embodies the ability of public spaces to accommodate diverse urban activities and contribute to the vitality of cities.[15]

NOTES

[1] Charles Moore, "You have to Pay for Public Life" in Kevin Keim Ed. *You Have to Pay for Public Life, Selected Essays of Charles W. Moore* (Cambridge M.A.: The MIT Press, 2001), 111-141

[2] Reyner Banham, *Los Angeles. The Architecture of the Four Ecologies* (Berkeley: University of California Press, 1971), 195.

[3] Lewis Mumford, *The Highway and the City* (New York: Harcourt, Brace, Jovanovich, Inc., 1963).

[4] Richard Senett, "Cité and Ville Divorce. "in *Building and Dwelling, Ethics for the City* (London: Penguin, 2018) 63-91

[5] Éric Alonzo is proposing a genealogy of the ideas of circulation infrastructure as architectural artifacts in *L'Architecture de la voie. Histoire et theories* (Paris: Parenthèses, 2018), 27-109.

[6] Peter Rowe, "China and the Inevitability of Infrastructural Interventions", in Linnéa Moore Ed., *Infrastructure and Landscape* (Wenzhou: School of Public Architecture, Wenzhou-Kean University, 2021), 26-61.

[7] Fei Chen, and al., "Public Space" in *The Palgrave Encyclopedia of Urban and Regional Futures* (Springer International Publishing, 2021), 1-7. doi:10.1007/978-3-030-51812-7_172-1

[8] Chye Kiang Heng, "Chinese Public Space, A Brief Account," in *Globalization, the City, and Civil Society in Pacific Asia: The Social Production of Civic Spaces,* ed. Mike Douglass, K. C. Ho, and Giok Ling Ooi (New York: Routledge, 2007) 79-103.

[9] Ronald G. Knapp, *China's Vernacular Architecture. House Form and Culture* (Honolulu: University of Hawaii Press, 1989), 14-17.

[10] Jeffrey Wenji He and Mark Henwood, "Typomorphological Ideas and the Development of Public Space: The Case of China's Jangnan Water towns", *Urban Morphology*, 16-1 (2012), 82-84.

[11] Lewis Mumford, "The Highway and the City", in *The Urban Prospect* (New York: Harcourt, Brace & World, 1968) 93.

[12] Bernard Sève, ""Artialisation" : ce qu'Alain Roger doit à un hapax de Montaigne ", *Essais*, *Hors-série 3,* (2016), 112-125.

[13] Heng, *Chinese Public Spaces*, 83.

[14] Chen, *Public Space*, 2.

15 Karen Franck and Quentin Stevens, *Loose Space: Possibilities and Diversity in Urban Life* (London: Routlsege, 2006) cited in Chen, 3.

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HOW TO BALANCE BETWEEN DESIGN QUALITY AND SUSTAINABILITY?

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INTRODUCTION

Cities are increasingly under pressure to provide livable environments for their inhabitants. Various indices measure city livability, like transport, housing, health, open space, mobility, the environment, matters of culture, entrepreneurship, crime and safety, affordability and access to education. Depending on whose 'livability index' you look at, it may include also design quality and sustainability.[1] These last two indices are much more difficult to quantify than the others mentioned. Moreover, they might also seem incompatible as design quality requires a specific identity, while sustainability requires flexibility. In this paper, we explore the balance between design quality and sustainability in creating a livable city.

In a first part we will examine in a literature review what design quality is on the one hand and what sustainability means on the other. Based on their individual definitions, they will seem to be incompatible. However, quotes from Bjarke Ingels and Sou Fujimoto offer us a a different view on sustainability in combination with design quality.

Their perspective will form the starting point for our approach and methodology, which we then apply in two case studies in the remainder of this paper.

Sustainability

The United Nations defined sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs".[2] Today, sustainability in environmental design refers to the practice of designing and constructing buildings and landscapes in a way that minimizes negative environmental impacts and promotes long-term ecological balance. [3]

Sustainability is often explained with the triple P's: People, Planet and Profit.[4] A sustainable idea can only be achieved if all three pillars are considered. People is a pillar that stands for the good welfare of society. Profit relates to the financial result. A company needs to make a profit to survive and to be able to invest in the long term. Planet means that the environment must be considered. The natural raw materials must not be exhausted. Consideration is being given to how the damage to the environment can be limited. Firstly, the project must be financially feasible (Profit). Secondly, the environmental impact of a neighborhood must also be reduced (Planet).[5] Finally, internal qualities must not be lost due to the renovation (People).

This involves including factors such as energy efficiency, water conservation, waste reduction, use of renewable resources, and the protection of natural habitats and ecosystems. Sustainable design also

considers the health and well-being of occupants, as well as the social and economic impacts of the building on the surrounding community.

In practice, sustainable design can involve a variety of strategies, such as using renewable energy sources like solar or wind power, designing buildings to maximize natural lighting and ventilation, incorporating green roofs or other forms of vegetation, using low-impact building materials, and employing water-saving technologies like greywater recycling or rainwater harvesting.

Overall, sustainable design seeks to create buildings and landscapes that meet the needs of people today without compromising the ability of future generations to meet their own needs. To be future proof, the building or landscape must be able to respond flexibly.

To make a building or landscape in this way future-proof, it's important to consider adaptability and resilience. Strategies to help ensure this flexibility in design are modularity that allows for easy reconfiguration of spaces, multifunctionality that makes other uses possible, universal design and circularity to facilitate the reuse of materials and building systems. [6]

Design Quality

Design quality refers to the degree to which a design meets its intended purpose and functions effectively and efficiently. [7] A design that is highly specific to a particular context or set of requirements is more likely to achieve a high level of quality. This is because a specific design is tailored to the unique needs of the project and consider the specific environmental, social, and cultural factors that can impact its success.

For example, a building design that is specific to a particular site and its surroundings, such as topography, climate, and local materials, is more likely to function efficiently, while also creating a sense of place and identity. Design quality makes space a place. Whatever space and time mean, place and occasion mean more. Make of each door a welcoming and give a face to each window. [8] Place is where you recognize yourself, what is familiar to you, as if it is right for you. Where very many people experience the same feeling and derive the experience of interconnectedness from it, it is a collective place. In other words; make each part of your design specific. Give a special added value to a space, so it gets a specific meaning for a number of people who feel connected or derive a sense of belonging from it. [9]

Specificity and flexiblity

Design quality comes with public spaces with a specific identity, and sustainability comes with flexibility, and therefore also a certain neutrality? Specificity and neutrality seem difficult to match? Are design quality and sustainability, both indices for a livable city, incompatible?

Design Quality and Sustainability

Bjarke Ingels is a Danish architect known for his innovative and often visionary approach to architecture. He emphasized that for a building to remain relevant, it should have a specific character with qualities aside from its pure function, aside from the pure programmatic. Thereby it will inspire the care of its users and will survive, even if its initial function is no longer needed. [10] This principle can also be applied to public spaces in cities, which can have a specific identity that inspires users to care for them.

This idea of places with a strong identity of Bjarke Ingels can also be linked with a comparison between a nest and a cave by Sou Fujimoto. Fujimoto is a Japanese architect, known for his experimental designs. Among him, the nest and the cave are primal states of architecture, but in a sense these two are opposites. A nest can be described as a hospitably arranged 'functional place'. By

contrast, a cave is there regardless of people. A nest is built in order to be inhabited, but a cave is a more provocative characteristic place full of opportunities for a person to discover.[11]

This is also related to what Hertzberger named 'making space, leaving space'; he indicated that we should go about designing in such a way that the result does not refer too outspokenly to an unequivocal goal, but that it still permits interpretation, so that it will take on its identity through usage. What we make must constitute an offer, it must have the capacity to elicit, time and again, specific reactions befitting specific situations; so it must not be merely neutral and flexible - and hence non-specific - but it must possess that wider efficaciousness that we call polyvalence. [12]

APPROACH AND METHODOLOGY

To reconcile design quality and sustainability, we took the importance of the character of a place as mentioned by Ingels, Fujimoto and Hertzberger as a starting point for a different approach of the design process. We changed the design method into a two-phase approach.

In a first phase, an investigation is made independent of a specific site; in which public places with character are analysed and documented by possible functions using different personae or fictional social roles of users of public spaces. (Figure 1 and 2) In that way specifics of public places that are highly appreciated in a city are identified.

Figure 1. Documentation of possible functions using different users of public space.

Figure 2. Detail of figure 1.

An example of such personae is a young couple with children that has recently moved to the city and that stopped at the 'play forest' on the way home from school. A second one, is that of some youngsters meeting in the evening at a campfire. Another one are new residents in the neighborhood chatting with the other residents at the annual flea market. Or the neighbor and her daughter maintaining the herb garden in the street. And young children like a refreshing swim in the outdoor pool.

After completing the initial stage of pinpointing the particular attributes of public spaces that are greatly valued within a city, we designed public areas with specific identities for a specific site, thereby focusing on creating places with character for that situation. And only much later in the design process, we tested the programmatic flexibility of the new design and if needed adjusted it for more sustainability.

CASES

The strategy was tested in design assignments for students of the third bachelor of Architectural Engineering in Leuven. In two assignments, one in Antwerp and one in Gent, students were not asked to design sustainable public areas in a direct way. Rather, we let them focus on designing public areas with identifiable characters, in order to create high-quality and sustainable places in a more indirect way.

Antwerp

We tested this a first time on an assignment for the development of a site in the north of the city of Antwerp. This former harbor site was abandoned many years ago and is now being made available for the development of different kinds of housing and associated services. In particular, a residential environment was sought for various residents, including families with children.

An urban plan was developed for this site, whereby the buildings were mainly situated on the longitudinal edges of the site, containing in between several public places, different from each other in dimensions, proportions and layout. Including for example a public fun square, shady spots in the sun, an intimate patio, a foot pedding platform, a play garden, and communal kitchen gardens. (Figure 3)
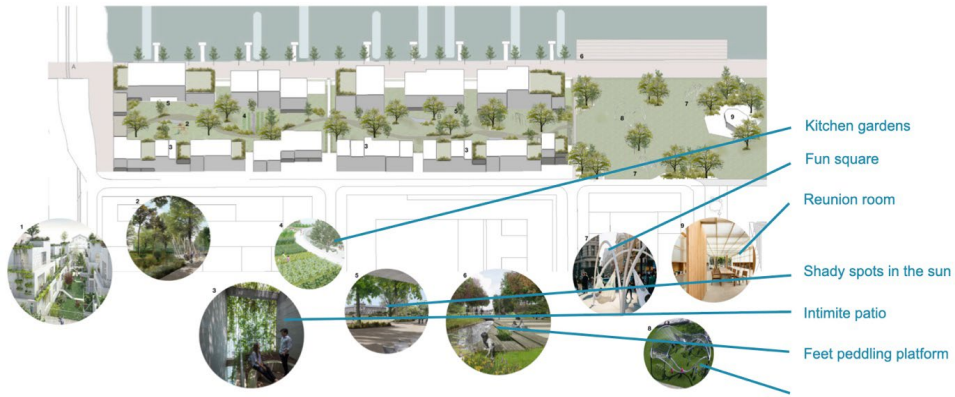
Figure 3. Urban plan for a part of the harbor of Antwerp indicating the public places.

Gent

The same strategy was also applied at a second site, located in the city of Ghent. This site is also located in the former harbor area of that city. The desired program was comparable to that of Antwerp, namely housing of different kinds together with supporting functions like shops and services. Here, the buildings sought to connect with the various peripheral buildings, resulting in different spatial configurations of housing on the site, depending on the neighboring neighborhood: connected housing, stacked housing and staggered housing. Also the public places in between these buildings differ and thus offer in that way a diversity of public places. Among others, a city forest, a play yard, a life path and dock stairs near the water were included in the plan. (Figure 4)

Review

Our approach enabled us to create public spaces that were initially designed for a specific identity. But later in the design process, it seemed that they could also be adapted to different uses. Testing the design in a later phase with different personae allowed us to assess its flexibility and adjust it accordingly. We found that many of the designed places were already more flexible than expected. Or they seemed easily adaptable to be so. This strategy seemed not to exclude its potential flexibility, thereby combining adjustability with specificity.
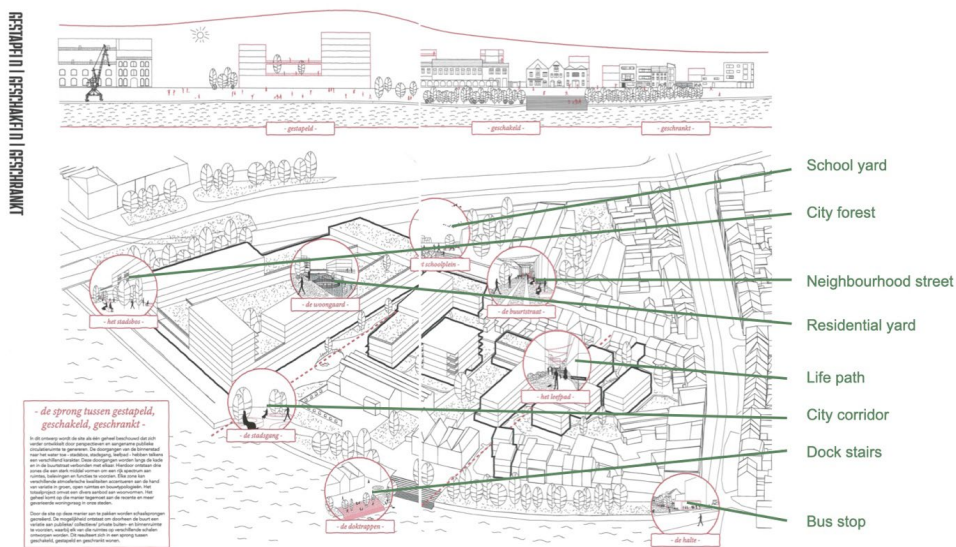
Figure 4. Urban plan for a part of the harbor of Gent indicating the public places.

CONCLUSION

Design quality and sustainability are not incompatible. By focusing in two specific cases on creating public spaces with character and testing them for programmatic flexibility, we came to the conclusion that we can create livable cities that have design quality and are sustainable. Our working method, based on quotes by Bjarke Ingels and Sou Fujimoto seems to offer a useful framework for balancing design quality and sustainability in urban planning and design.

Continuing to apply this method in even more cases at other sites and in other circumstances will further clarify its relevance.

Also interviewing other architects and analysing their working methods to implement places with strong identity in their designs, could also be a next step to further refine the research of this paper. For example, Bjarke Ingels' design office also seems to be using a similar strategy to ours? In any case, the result of their design process are also public areas with strong identities. For example, their design for Superkilen in Copenhagen is a long urban space as a succession of such places.[13]

NOTES

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INTERACTION WITH URBAN INFRASTRUCTURES AND THE LIVEABILITY OF CITIES: A COMPREHENSIVE REVIEW

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INTRODUCTION AND CONTEXT

Citing Susan Leigh Star,[1] this article pertains to the study of boring things, in other words, the urban infrastructure, which often seems to be an infinite list of numbers and technical details. However, as the same scholar states, spaces such as cities, schools, or work environments are deeply impacted by infrastructures. Ignoring these means ignoring fundamental aspects of our society, which range from justice to power planning.[2] For this reason, it is necessary to identify new methods to comprehend better the overlapping between infrastructures and human organisations.[3]

Urban infrastructures are known for determining the liveability of a city. They enable not only the flows of goods, people, and information but also a new – or different – understanding of our environment and ourselves, both from a personal viewpoint and from encountering others. However, despite this recognition, a comprehensive review of these themes seems to be missing. This article intends to fill this gap and study how urban infrastructures can affect the liveability of cities by drawing on the literature on Science and Technology Studies (STS) and Actor-Network Theory (ANT). In doing so, it will present urban infrastructures according to what the author calls "double dimension": Material and immaterial. This perspective will enable one to see how, over the decades, urban infrastructures have impacted and have been impacted by cities, focusing specifically on the work undertaken at the social level of the former. Indeed, given the crucial role they play with respect to the liveability of cities, it is necessary to consider how they can affect issues such as integration or uneven development.

This paper has a twofold goal. On the one side, it contributes to academic research by providing an exhaustive review, which can help scholars identify new elements to advance research. On the other, it gives practical consequences: By presenting key components in the relationship between urban infrastructures and liveability, it can pave the way toward better practices in planning, building, and maintaining these projects.

METHODS AND THE THEORETICAL FRAMEWORK

The article used a qualitative literature review to collect relevant articles. First, it identified pieces of research by using keywords such as "infrastructure*" AND "science and technology studies"; then, it proceeded with a hand search of reference lists. On account of the exploratory nature of this paper, each publication was analysed in order to identify themes of the object of research.

By employing the ANT and STS perspectives, infrastructures are considered here as artefact and networks. They are a material bundles of relationships that are created and dismantled by humans and

non-humans. This idea also posits that infrastructures are always made and fallen apart.[4] In this sense, such bundles do not only work in the abstract, but they can also favour the creation of contestation, inequalities, and the production of the State and its power, as the paper will show. As such, infrastructures are privileged actors to assemble the social[5] and have an impact in the way society is made.[6] As infrastructures have meanings and need maintenance and investment, they are critical sites of deliberation about what and whose social and economic standpoints are supported.[7]

FINDINGS AND DISCUSSION

Considering the vital role they can play, it is apparent why many studies have given their own definition of infrastructure. Steele and Legacy[8] describe the infrastructure as a multidimensional phenomenon that has profound social, political, and economic implications, which is as much about space, ecology, and culture as it is about pipes, scaffolding, cables, and concrete. In material terms, Siemiatycki, Enright, and Valverde[9] define infrastructure as a vast physical and technical network of roads, tunnels, railways, public transport networks, and much more, which are installed to satisfy society's growing desire for connectivity, communication, and exchange. Although they differ in some respects, these definitions share a social and structural dimension that is influenced by and influences the infrastructure.

The double dimension of infrastructures

Infrastructures must be considered to have a double dimension. In this article, this is indicated as "material" and "immaterial". Although the following two sections delve into studies and research conducted on these two elements separately, to study the infrastructure, it is necessary to read them as if they were overlapped. In such a way, it will be possible to have a clear overview of the context.

The material dimension

Over the years, the infrastructure has been increasingly used to transport goods and services. Therefore, these projects are precisely created to change the society structure[10]. By making possible the creation of a global system of transportation, communication and logistics, infrastructures have facilitated the so-called "Great Acceleration": A dramatic increase in population, economic activity, and resource use to maintain the infrastructure itself[11]. Even today, infrastructures remain central to political agendas worldwide, so much so that, in 2008, the Economist[12] considered infrastructure spending the most extensive investment in human history. If well-idealised, infrastructures can positively impact many other aspects of society, such as maintaining high employment levels or improving productivity and competitiveness. On the other hand, if the investment is not well-conceived, the risk is weakening the economy.

However, much information shows that infrastructures rarely manage to achieve the expected results within the pre-established period and according to the budget. It is said that only one project out of ten succeeds in each of these aspects.[13] In light of such findings, Flyvbjerg[14] summarises this phenomenon through the "iron law": Over budget, over time, and over and over again. To this effect, one must link what Kaika and Swyngedouw[15] call the "phantasmagoria of urban technical networks," which often translates into a lack of attention to projects that are less spectacular but respond directly to primary social problems. The result of these processes is what Flyvbjerg[16] calls "the survival of the unfitted": In contrast to Darwin's law, among infrastructures, the worst projects tend to survive because the benefits are exaggerated, while the costs are underestimated. Many cases support this thesis, such as the Eurotunnel, which connects England and France passing under the English Channel, or the connection of the Great Belt in Denmark. In both cases, the costs exceeded what was

initially decided: The projects were completed because the cost-benefit ratio presented to investors was considerably inflated.[17]

In light of this, one can not consider the material aspect as independent of political and organisational facets, financial needs, and know-how necessary for design, construction, operation and maintenance.[18] For these reasons, it is also essential to understand the power relations that come into play in all phases of project development, from the setting of the agenda to financing. As will be explained, this production can not be seen as an aspect solely related to engineering: There are informal processes of creation, use, and adaptation that make the infrastructure a political project of production and communication of information.[19]

The immaterial dimension

As explained, the social aspect is fundamental in infrastructures. It is possible to see the infrastructure as a lens for understanding socio-spatial and political dynamics and as a technology that catalyses and crystallises these dynamics.[20]

That is: Since the infrastructure exists in space and, at the same time, creates space thanks to its technical functions,[21] people define and experience their environment also thanks to its presence. For these reasons, although infrastructures can be interpreted as distinct objects of analysis, in this study particular attention is paid to the relationships they create. This point of view becomes even more pertinent if one looks at the work that infrastructure does in the social field. In this sense, Calhoun[22] states that the large-scale social relations of the contemporary era are principally possible by infrastructures. Think, for example, of the meetings one has while commuting. Due to these, people can develop a perception of the environments in which they live, expectations, battles to fight, and consequent changes on the basis of their power and position in the infrastructural system.[23] As a result of the multitude of interactions across and in infrastructures, people can develop patterns of social practices, understandings, and relationships. Following this perspective, one can consider, for example, the transformations created by the subway in New York in 1904. By leading people to a new social role and bringing them closer, the subway produced a new subject: The passenger.[24] Designers were interested in bringing people together through public transportation, which improved the circulation in the city. However, the effects on people are not always positive. Staying in New York, Roberto Moses, the city planner, decided to build low bridges over the Grand Central Parkway. Thus, public buses could not pass under them and reach the wealthier suburbs of Long Island.[25] The limitations, in this case, were not due to the will of politics, but to the designers. In the same years as the New York subway, Cairo and Berlin developed urban railway lines that, instead of bringing people together, drove them away.[26] The reference group in these two cases was the emerging middle class to allow them to live a healthy and happy life in suburbs far from the two cities. Unlike the New York subway, these two railroads fragmented people's experience, making it easier and faster for the wealthy to move from the chaotic city centre. In conclusion, paraphrasing Star,[27] there are millions of infrastructural bridges and just as many buses that can not pass under them. Each potential change is inscribed profoundly in the design of these projects.

Infrastructures and their relationship with society

The presented studies stated that infrastructures shape and are shaped by society. By being made of physical components, such as water pipes, infrastructures influence the orientations and interactions of users.[28] As a result, opportunities and constraints are created for social changes that otherwise could not occur. At the same time, infrastructures have social components, such as professional organisations. These parties decide how to provide infrastructure services by building, managing and

changing these artefacts.[29] This fact implies that infrastructures, as well as affecting the environment, impact bodies, behaviours, and entire populations.

Infrastructures as heralds of meanings

The infrastructure carries and represents different meanings: One of the most evident examples concerns the symbolic messages that the promoters of these projects want to spread. Infrastructure construction can not be conceived as the design of an object, but also as a political project that creates and communicates something.[30] Very often, messages transmitted do not reflect what the infrastructure actually does: They concern issues such as the values of promoters, or political power.[31] This capability allows infrastructures to create a precise vision of society. This fact explains why they are often at the centre of debates and discussions: By being able to plan, communicate and interpret this system, a group is able to support existing or new hierarchies of power.[32]

Infrastructures as producers of State and power

In light of what has been traced in these pages, it seems clear that the infrastructure can also produce the State and power thanks to assembling the social and changing the relationships between communities and States.[33] In this regard, according to some scholars, since the 1990s, infrastructure investments no longer serve to modify the territory but to underline the role of the State and its capabilities.[34]

Taking the concept of infrastructure as that of a political terrain in which power relations are created, reproduced, and contested, one can see infrastructures as composed of multiple levels that work on different aspects: They can connect or distance people, goods, flows, and ideas.[35] Many studies focused on the relations between communities and States. Some of these date back to the 1990s: Akrich[36] focuses on the political capabilities of infrastructures in Ivory Coast. By examining the local electrification process, he shows its ability to reach hitherto isolated regions, leading entire families to pay monthly for a service they did not have before. As a result, the electricity grid creates a new relationship between the State and citizens, who now see their behaviour controlled by their bills. More recently, Meehan,[37] by analysing water infrastructures in Tijuana, Mexico, documents their role in producing State power and limiting it. If, on the one hand, infrastructures help territorialise and consolidate federal authority over the years, on the other, the continuous use by citizens of household tools – such as barrels and cisterns – to collect rainwater prevents stabilisation. From this point of view, when a community is unwilling or unable to fulfil the role given to it by the infrastructure, it is necessary to persuade people to behave in a certain way. According to Akrich,[38] persuasion is fundamental to achieving infrastructure stability: Without it, the infrastructure remains a chimaera.

Infrastructures and the development of cities

Infrastructures are a fundamental element in the development of cities from several points of view. Due to the massive impact that these have on economic and social development, the well-being of cities (and, consequently, of the States) can be influenced by one project, more than most when a failure follows it. For instance, as described by Flyvbjerg,[39] continuous delays for the inauguration of an international airport in Hong Kong forced air traffic to move to other areas, with a consequent fall in the GNP of the region. However, this bond goes beyond the material aspect: Contemporary societies are increasingly urban. Consequently, cities become the pivotal places where infrastructure resource flows are geographically concentrated and where daily exchanges between the infrastructure and natural environments occur.[40] As cities are expanding their network of action, importing resources and using neighbouring regions, infrastructures become even more relevant to set these mechanisms in motion. In other words, it is possible to state that modern and contemporary urbanisation has

depended, and continues to do so, on infrastructure networks that guide the resource flows within and along cities.[41] More precisely, according to the literature, cities and infrastructures have evolved according to a dialectical relationship. On the one hand, the development of cities has been made possible by infrastructures, which guide and facilitate urban life and functions in different ways.[42] On the other hand, the urban environment is still today a prerequisite for the development, innovation, and growth of these projects.[43] Despite the significant link in which the dependence of cities on the functioning of these works becomes clear, infrastructures often become invisible and taken for granted: They are ignored unless they result in an apparent failure.[44]

Infrastructures as contested political objects

Infrastructures can also become contested political objects. Concerning the link these ones have with the city, the Mistra Urban Futures[45] describes the struggles for having fair cities as struggles about infrastructures, with the aim of achieving a just distribution of resources and skills to use them. Then, the Heterogeneous Infrastructures of Cities in Uganda project,[46] thanks to the combination of the infrastructure theme with critical urban theory, highlights the ability of infrastructure systems to produce and destroy cities. By doing so, the project shows how infrastructures are open to appropriation and adaptation by individuals and communities, employing ways unforeseen by the urban administration. Finally, the Infrastructure in Action research cluster[47] at the University of Sheffield studies the influence of resource flows on social disparities in cities and how these implications change across political, economic, and technological transformations.

CONCLUSION

The overview presented here shows that, according to the double dimension of infrastructures, these projects can affect the liveability of cities from many points of view. The interactions occurring within and with infrastructures are the foundations of our social forms. Such models include patterns of social integration – or fragmentation – as seen for the subway in New York or the railway lines in Cairo and Berlin. Then, there is the production and limitation of State power, as the case of water infrastructures in Mexico makes clear. However, one should also consider the (unequal) economic and geographical development, which can bring benefits or costs within the territory depending on how the project is conceived. In this regard, in recent decades, several studies have documented, according to a gender and ethnic perspective, the unequal results brought about by infrastructures and the different experiences that people undergo when using these.[48] In order to respond to these diverse effects, some scholars have questioned the material and symbolic Eurocentrism that characterises these works and adopted a postcolonial and feminist point of view, studying how infrastructures are built, where and by whom.[49]

Researchers and practitioners can benefit from this analysis. On the one side, researchers can delve into the topics presented. It is worth noting that most of the investigations in this paper employ qualitative approaches, such as ethnography. Therefore, scholars could employ other methods to further study these topics and present a different perspective. On the other one, practitioners have to recognise the dynamics occurring between and within infrastructures and the surrounding environment in order to be able to design and build infrastructure that favour society as a whole.

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MONUMENTS WITHOUT PEDESTALS: EQUIVOCATION OF ECOLOGY IN THE ART AND ARCHITECTURE OF TONY SMITH

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INTRODUCTION

This article investigates an ontological history of ecology in art and architecture since the post war period in the United States through the lens of selected urban and land works by the American modernist artist Tony Smith (1912–1980). Smith was an architect, sculptor, and educator whose wide-ranging practice in art and architecture transcended a number of major modernist moments from the New Bauhaus, Frank Lloyd Wright's Taliesin, to Abstract Expressionism and Minimalism. His sculptures—difficult to classify—could be summarily considered to be small scale amelioratory, or curative interventions in the increasingly dehumanized urban landscapes that developed after World War II. Smith's sculpture, too, could be viewed as possible remedies deployed by city administrators such as John Lindsay, New York City's mayor from 1966 to 1973, to help salve an intense period of civil unrest. Another example: The group exhibition Sculpture in Environment (1967) organized by Doris Freedman for the New York Parks Department launched what would eventually become a long legacy of city support for public art embodied in laws such as Percent for Art law which the city passed in 1982. From today's vantage point, this period serves as a precipice for increasing prominence of earth and land art projects which evolved at this time to invent and think about new ways of engaging with and inhabiting natural and built environments. The following reflection encompasses a review of a rather quick, concentrated trajectory in contemporary art and architecture ecology discourse, mapping a path that lead to where we stand now while offering commentary on how we move forward beyond the ambiguities associated with questions related to ecological livable cities.
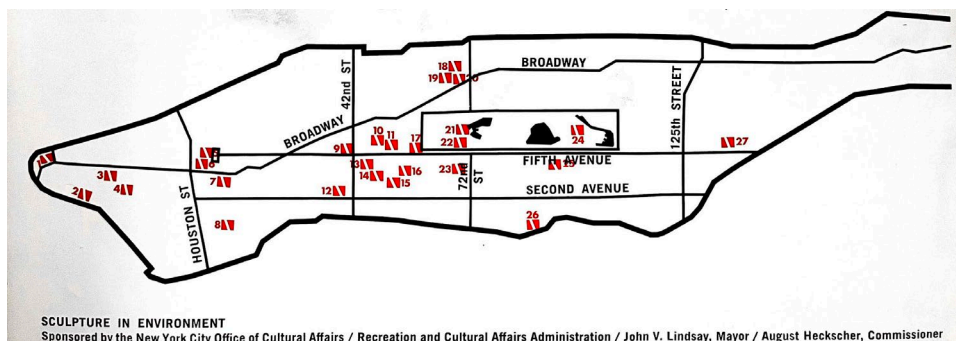
Figure 1. Sculpture in Environment; [Brochure of an Exhibition] Oct. 1-31, 1967, New York City Administration of Recreation.and Cultural Affairs, NY, 1967

Figure 2. Installation view of the exhibition Primary Structures: Younger American and British Sculptors, April 27-June 12, 1966. The Jewish Museum, NY.

Instead of being made of natural materials, such as marble, granite, or other kinds of rock, the new monuments are made of artificial materials, plastic, chrome, and electric light. They are not built for the ages, but rather against the ages. They are involved in a systematic reduction of time down to fractions of seconds, rather than in representing the long spaces of centuries both past and future are placed into an objective present.[1]

Robert Smithson's essay "Entropy and the New Monuments" was published in Artforum around the same time as the seminal exhibition Primary Structures, which occurred at the Jewish Museum in New York from April 27 to June 12, 1966. The exhibition featured works by 42 artists including Carl Andre, Judy Gerowitz (now Judy Chicago), Donald Judd, Sol LeWitt, Robert Morris, Tony Smith, Robert Smithson, and Anne Truitt. Primary Structures is noteworthy for coining the term "minimalism" in later criticism even though the curator Kynaston McShine did not use that term in the exhibition catalogue or associated didactics. Nevertheless, Primary Structures presented works that shared aesthetic characteristics of abstract, industrial, and non-representational materials and

forms that would come to define "Minimalist Art." Smithson reflects in Artforum that these new works, or "new monuments" as he called them above, encouraged us to paradoxically kind of forget the future instead of remember the past like the "old" monuments.

It's fitting here to pause and reflect on the temporality of artworks in both time and space. Knowing that artificial materials and mass production inevitably emit a significant amount of carbon dioxide into the atmosphere, and hardly decompose, "forgetting the future" as Smithson implies actually resonates more with us today fifty years into future from when he wrote it.

Entropy

The above thoughts lead one to think about entropy. Entropy is a measure of disorder explaining the irreversible process of nature from the second law of thermodynamics. Smithson, in the very same essay, also offered some thoughts about thermodynamics.

In a rather round-about way, many of the artists have provided a visible analog for the Second Law of Thermodynamics, which extrapolates the range of entropy by telling us energy is more easily lost than obtained, and that in the ultimate future the whole universe will burn out and be transformed into an all-encompassing sameness.[2]

The abstract laws of physics disregard the complexity of reality become the foundation for rationalizing reasons related to why any change occurs in the universe.[3] The laws of thermodynamics elucidate changes using three properties: temperature, energy, and entropy in the system and its surroundings.[4] A system such as a combustible engine, a human body, or Planet Earth—either open or closed—share the same intrinsic law: energy cannot be reversed. Changes from heat to kinetic energy and then entropy transforming from organic matter to industrialized materials have been exponentially perpetuated in shaping our built environment. Entropy increases exponentially in the process of convergence to the thermal equilibrium between the system and its surroundings until it reaches zero. The havoc wrought by the increased and overlapping timelines of entropy have come to us as extraordinary atmospheric disruptions of climate change in what is now referred to as the "Anthropocene," a contemporary reference coined to refer to the irreversible damages to the plantet caused by humans.

Robert Smithson appropriated the term "entropy" when talking about aspects of contemporary art in his writings where he referred to the sameness of architecture during an era which he in turn called "Ultra-Modernism."[5] Ultra-modernism, for Smithson, originated from modernism in the rejection of references to the past and an absolute embrace of everything new toward function-oriented utopian ideals. But ultra-modernism is a perplexed and wrongfully adopted, even corrupted form of modernism propagated widely as a crystalline of the 1930s—refusing to remain temporal while perpetuating itself repeatedly like illusive prismatic mirrors facing each other reflecting forever sameness. This ultra-modernism for Smithson is a "hypertrophy" from which even the avant-garde suffered becoming thus the "basic disease of the historical function."[6]

The architecture of entropy as it relates to urban sprawl and the ever-growing postwar boom housing development gave birth to an architecture, as Smithson stated, "without value of qualities" has today reduced its intensity in North America suburban context while continuing to proliferate on other continents. The second law of thermodynamics postulates a closed system to explain thermal equilibrium. However, the system of the Earth is thermally open whereas colonial capitalism continues to recklessly deplete resources through an unrelenting growth. Hence, equilibrium hasn't been reached, and it cannot be reached in both analogical and physical terms. It can only remain open while creating extreme disturbances in climate and social inequalities.

The postwar generation artists in the 1960s witnessed the volatile changes in the built environment from newly planned highways to suburban developments, and became susceptible to the

psychological and physical entropic impact of these changes in their surroundings. Their works in turn, however, and even paradoxically, evoke something reminiscent of hubris, which by its very definition connotes an attitude of excessive pride.

Tony Smith

Fast-forward a couple years from the time Smithson published his Artforum article to the summer of 1968. Tony Smith sat down with René S. Neu, MoMA's assistant curator and organizer of the exhibition Tony Smith: Six Sculptures at the Museum of Modern Art (1968–69) for an interview at Smith's home in South Orange, New Jersey. The first question posed by Neu: "It has been said that you are the progenitor of minimal art. To what extent do you believe this to be true?" Here, Neu refers to the recent cover story "Sculpture: Master of the Monumentalists" published in the October 1967 issue of TIME magazine picturing Smith on the cover standing under his monumental sculpture *Smoke*, which had just been installed at the Corcoran Gallery in Washington, D.C. Smith responded that he didn't believe so, and that people who made minimal art wouldn't take him or his works into account although a few pieces like *Black Box* or *Die*—both basic orthogonal boxes made of steel and industrially produced—aesthetically corresponded to the characteristics that had come to define Minimal Art. He said,

Figure 3. Tony Smith, Cigarette(1961) Photo by Edward Saxon. Installation view of the exhibition Tony Smith: Two Exhibitions of Sculpture, November 8-December 31,1966. The Wadsworth Atheneum, Hartford.

I had some rather similar boxes which came to this country from Germany in 1955. I liked and didn't throw them out and over a period of years, they began to fall apart and at some point or other, I started to replace them with steel although I certainly never thought of the boxes as sculpture. I just thought of them as being there, which is how the word presence came into existence. I didn't think of them as

presences in any melodramatic sense, but rather that I used that word simply in the context that they were there, that they were present.[7]

The question was surely posed because Smith's had participated in the group exhibition Black, White, and Gray at the Wadsworth Atheneum in the winter of 1964 and then Primary Structures at the Jewish Museum a couple years later intensified a quickly constructed identity of minimal art. However, later, after experiencing other works by Smith in urban contexts many art critics identified other distinguishable qualities that in fact disassociated his sculptures from the industrial characteristic connected to Miniamlism. An intense physical and emotional relationship among his sculpture, the viewer, and the surroundings became something quite noteworthy by many critics.[8] Then, around the same time—summer 1967—Lucy Lippard identified a mysterious association between archaic monuments, which Samuel Wagstaff had already noted about Smith's structures and, as she wrote: "Carl Andre's projected holes, Robert Morris's and Walter de Maria's desert mounds, Michael Steiner's angular protrusions from mountain sides, or Oldenburg's giant perishables." And, yet, only Smith's work was situated in daily life.[9] According to Smith, the object is a black box that had existed as a black painted card file box in his memory, even simplified to the point of being a black cuboid. "In fact the black was no longer black paint, aside from color, Its only quality was its extension -And we recall that its specific extension had to be verified by telephone."[10] One of the things that mattered most to Smith was where and when a work was situated in relation to its surroundings. So, without taking a step back here to look more analytically one could quickly categorize his works under Minimalism. And, at the same time taking a romantic perspective as Lippard did, the work could be associated with the archaic primordial monuments, shifting focus from object to subject. Or, as Hal Foster has remarked, "from ontological questions about the nature of medium to phenomenological conditions of particular bodies in particular spaces."[11]

Figure 4. The Museum of Modern Art, 1968. Sabatello, Renee. "Tony Smith (Interview)." Brochure for MoMA circulating exhibition

In the interview, as a follow up question, Neu steers the conversation to questions about site-specificity in Smith's works and his preferences toward making sculptures for outdoor presentation. And while he differentiates this work from what is increasingly referred to as earth or land art, specifically referring to the non-transactional engagement between viewers and works by Michael Heizer, Smith says, "my ideas aren't related so much to his [Heizer] own works, but to a very large class of works … which exists only in place." and "the work is really casual compared to the depth of my thought about the specific location on the surface of the earth."[12] Smith continues by stating, "the main lack in European occupation in the North American continent is the fact that we haven't established monuments of human significance on the surface of the earth or related to the earth as

such. It's true that we've built some canals and railroad embankments and dams and things of that kind, but they weren't built primarily for human ends."[13] The speculative interpretation of "a very large class of works," as he says, can be traced back to a new way of bodily engagement with land and form beyond the separation between humans and their relationship to place resulting from industrialization and mechanization. People became removed from what it meant to inhabit nature in the intense processes of capitalism that finally reshaped human nature whereas bodies become connected to production of goods. Smith had acknowledged the intricate detachment from land in colonized North America as it originally belonged to the Native Americans.

Being and Time

In another interview—this one published in the December 1966 issue of Artforum, the now infamous conversation between Smith and curator Samuel Wagstaff, Smith reflects on the expanded, eschewed bodily experiences of art and reality. Smith describes his late-night drive on the unfinished portion of the New Jersey turnpike between the Meadowlands and New Brunswick with three of his Cooper Union students in 1951.

It was a dark night and there were no lights or shoulder markers, lines, railings or anything at all except the dark pavement moving through the landscape of the flats, rimmed by hills in the distance, but punctuated by stacks, towers, fumes and colored lights. This drive was a revealing experience. The road and much of the landscape was artificial, and yet it couldn't be called a work of art. On the other hand, it did something for me that art has never done. At first I didn't know what it was, but its effect was to liberate me from many of the views I had about art. It seemed that there was a reality there which had not had any expression in art.[14]

In transitory times through the eyes of emerging and observant minds, a new way of perceiving land and space and the body's connection to both begins to form. The lived space and time during the industrializing metropolis of Berlin was depicted beautifully by August Endell (1871–1925) who was inspired by Claude Monet's painting Saint-Germain-l'Auxerrois (1867). Endell found aesthetic enrichment from ephemeral atmospheres at everyday objects emphasizing a complete engagement with the here and now.[15] The existence in moments before conscious reflection or scientific analysis is something real from a phenomenological standpoint. Hence, a thing cannot separate itself from its surroundings and atmosphere. It quite simply relates. László Moholy-Nagy (1985–1946) who was Tony Smith's professor at the New Bauhaus in Chicago captured everyday urban activities in his film Berlin Still Life (1936). Moholy-Nagy's interests in psychological optics from the influential pedagogical book The New Vision and Abstract of an Artist published in 1928 while he was at the Bauhaus in Germany were further developed and refined during his brief stint overseeing the New Bauhaus in Chicago from 1936 to 1937, and then the Institute of Design, Chicago into the Vision in motion (1947).

The Bauhaus positioned architecture and sculpture ambiguously, overlapping disciplines since they share similar aspects and interests in space and the relationships between the build form and humans. Architecture as modern, and sculpture as pseudo-modern, both articulate spatial directions, patterns, and relations originating in volumes. Yet sculpture is "pseudo-modern" as it doesn't articulate space at times in the relations of planes and slabs.[16] Modern architecture's emphasis is not on "sculptural shapes," but on the relations connecting within and with the outside bound to its thresholds as spatial divisions. It was in a way to deviate the modern from the past monumental classical architecture with dominant masses liked sculptures. The New Bauhaus in Chicago addresses The New Humanism; Walter Gropius decried the wrongful distortion of the modern movement as a heartless and inhumane functionalism.[17] At the same time, it reexamined the agency of art, architecture in industrialized societies, and embraced town planning and social services as chronicled in a leaflet titled The First

Program Announcement: The New Bauhaus, Chicago, Fall, 1937.[18] Moholy-Nagy invested art as a remedy or at the very least the sublimation of aggressive impulses responsive to the urbane social problems of industrialized societies, stating: "with collective subconscious frustrations, creating psychopathic borderline cases of neurosis."[19] The boundary between architecture and sculpture then became even more ambiguous as the subject of discourse expanded to urban context and with his teaching at the New Bauhaus in Chicago. The rejection of classical monumental architecture is revoked as the historical sculptural features in urban contexts ease collective subconscious frustrations. The modern, and contemporary art is not a fixed term, it is an ontological concept that is malleable as it is. The psychological optics was later enhanced through urban theories of Jane Jacobs, The Death and Life of Great American Cities (1961) and Kevin A. Lynch, The Image of the City (1960). The latter book is the result of five years of research funded by the Rockefeller Foundation and directed by Lynch and Professor György Kepes[20] at the Massachusetts Institute of Technology Center for Urban and Regional Studies.[21]

Modernism for American Cities

György Kepes (1906–2001), who was a young instructor at the New Bauhaus, recalls in an interview with Dorothy Seckler in 1968 that Tony Smith among the first-year students had " their own idea, sometimes very wrong about what the Bauhaus should be. They thought it's an artists' community; there is no teaching" and "sometimes very important as they had a clearer vision of tasks than we had coming from another continent. They were a very destructive influence."[22] Although the main reason for closure of the New Bauhaus closure was funding withdrawal from the Association of Arts and Industries in Chicago due to the unexpected economical situation with the stock market crash, Tony Smith recollects a disagreement with Moholy-Nagy's decision to appoint George Fred Keck (1895–1980) as a director caused about twenty out of thirty-five students from the first cohort to leave before the Easter holiday in spring 1938.[23] Moholy-Nagy was under pressure from the board to reform the curriculum to be more streamlined serving the industrial complex. The students who departed prematurely were described as people who mistakenly understood the Bauhaus as a "community of free artists" and not "the disciplined design school" and their individuality was considered as the model of the nineteenth century independent artist for the sake of endorsing the institution.[24]

Nevertheless, as Kepes admitted that students had the clearer visions on social contexts in North America, students like Tony Smith were well aware of the social problems in aspirations of learning the new modern European design. Based on an interview transcript from 1978 between Smith and Paul Cummings, it is probable that Smith had turned into the fact the New Bauhaus was not necessarily going to proceed as it was originally manifested as a socialistic institution focused on the social function of architecture and design; yet, it was becoming an instrument of capitalist corporate agendas regardless of the struggles faculty members over depletion of funding. When Moholy-Nagy took students to the solar house at the Chicago's World Fair (1938) designed by George Fred Keck, he referred to the solar house as an example of the new modern architecture. The solar house, composed completely of glass on all sides, was introduced as the first model of passive sustainable design referred to as "The House of Tomorrow."[25] Even though Smith criticized the aesthetic aspects of the project, it's readily apparent that all glass houses are not thermally suitable or energy-efficient as a living space, unless it is intended to function as a greenhouse. The equivocation among ecology circles around technology driven sustainability, energy efficient passive design, and yet the question whether it respects the natural ecosystem or functions only for some to sustain a convenient modern lifestyle remains open questions.

Organic Life

Tony Smith's attitude on the relationship between humans and their environment is evident in the unpublished essay "The Pattern of Organic Life in America" Written around 1943, Smith reflects on the make-up of suburban towns from the East to West coasts resulting in part from his travels associated with the fellowship at Frank Lloyd Wright's Taliesin while working on individual residential projects by Frank Lloyd Wright such as The Ardmore Experiment: Suntop Homes for Otto Tod Mallery in Pennsylvania (1939); Andrew F.H Armstrong house in Indiana (1939); and then his own design-built projects such as the Robert and Mary Gunning House in Black Lick, Ohio (1941), the Brotherton House in Mt. Vernon, Washington (1944).[26]

Figure 5. Tony Smith, Exterior view of L. L. Brotherton House, 1944, Mt. Vernon, WA

Lloyd-Wright's Ardmore Experiment was originally conceived as a prototype housing project in the Broadacre City planning proposal in 1935. The quadruple housing comprises one building separated by the fire-proof cross-walls, which have shafts for heating, ventilation and electricity. The project holds the usonian dream that people live a sovereign life with an acre of land providing essential resources. This dream imagined a sedentary way of life based on sustainable agricultural practices and it considered land as an instrumental value, usonian vision intrinsically presuming empty, or even tabula rasa conditions making the indigenous people invisible in making neighborhoods. Lloyd Wright's intention was to free the poor, who were now wage laborer for the machine, struggling with "triple rent: rent for land, rent for money, rent for ideas."[27] He believed that decapitalize and demechanize people through self-sustaining agriculture-based communities economically independent from major monetary systems will free people from as indebted labors. The partially realized housing project was commissioned by the developer Otto Tod Mallery. The design was patented as a new prototype for a new suburban housing project that would appeal to the entry level income tenants. Only the first housing plan with four homes was ultimately built while the other twelve unrealized due to high construction costs under the influence of World War II.

This ambitious project was the first project that Tony Smith worked as an apprentice under the master builder, Harold Turner who taught him about all aspects of construction works from carpentry to bricklaying, to estimates as an on-site manager. It was almost coincidental how Smith joined the Frank Lloyd Wright project. His friend from the New Bauhaus, Laurence Cureno, who was a photographer for Wright, asked him to help on the shooting of the New York World Fair at Underwood. A day later, the two made a trip to the Ben Rebhuhn House (1937) in Great Neck, New York.[28] Smith was absolutely astonished by the house and Cureno made a phone call to someone, probably Harold Turner, that he would send Smith to the Admore site. Smith showed up at 8am on site with no idea what would happen on the following day.[29]

So anyway I started out as a carpenter's helper and they could tell in two minutes that I had never been on a building job and they told me to get some lumber and bring it onto the job and they were very heavy 3x6's…and anyway I got promptly got sick on the job… and then the next morning I was there on the job again. the man said that ``I never thought I'd see you again.''[30]

Building a house involves considering many aspects of human engagement and inhabitation—not only architecture design. One must be aware of what depends on weather conditions; all materials supply logistics; and all detailed procedures; and what cannot be done for what reasons as well as the subjective, personal characteristics of each worker. From engaging with every step of construction, Smith had to build a mutual respect with workers before being able to successfully hold the superintendent role after Turner left the site. For five months, the hands-on experience on the site offer a glimpse of working-class, everyday life from the basic elements to the larger concept of the utopian ideal at the Taliesin.

During this period, Smith had an opportunity to observe the scarcities of Midwestern towns "in a sense of concretion- form-identity-being" and their amorphic isolated conditions. In his essay "Pattern of Organic Life" he portrays an idealistic image of a neighborhood as a plant rooted on the surface of the earth, built on the culture, growing within the limits of its own form.[31] It is noteworthy throughout his writings that he uses the terms "Space," "Time," and "Being, terms imbued with concepts from the book Martin Heidegger's books Being and Time (1927) applying them to everyday life from houses, towns, cities, to land. Smith sees the neighborhood "In relation to the larger concept of space, it stands as any other isolated object; lamp post, fire hydrant, post box or trash bin."[32] His way of perceiving the world in openness without epistemological primacy extended to the appreciation of nomadic life of the indigenous cultures deeply rooted in the American continents. He reminds us that North America originally belonged to the natives, and Europeans are only the settlers. As New York City becomes more densely populated at this time with skyscrapers, in a later essay "Two Cities, On the Way to a City (1954) Smith reflects, "Almost everything is on stilts nowadays, and we could literally give the land back to the Indians."[33] He continues by stating,

Most planned neighborhoods exist as isolated in space and time - they have no greater relationship to the general cultural pattern than they do to the one of space and time. A neighborhood should have rooted - deep in the cultural past - it should leap into the light and air and future like a plant - the culture on the Earth's surface - the land culture has the character of the plant kingdom - it is rooted to a spot on the Earth's surface where it finds its growth the poetry of what man builds on earth is the poetry of the earth or mineral world and the plant kingdom. It is interesting that cultures which use the skins or wool of animals for their habitations are nomadic, moving cultures having the characters animals as opposed to plants or earth. This is important since the poetry of building is largely in using earth materials and plant materials in a way to suggest their proportionate existence and meaning in nature. The myth of wood - of rock - of earth - of clay - wool skins leather. The latter mobile.[34]

This statement shares similar sensitivity of perception with the contemporary philosophy of what was is called Object-Oriented Ontology, or OOO, an approach to looking at the word inherited from

Heideggerian philosophy or even further retraced to Aristotle. The ancient Greek philosophical paradox known as "The Ship of Theseus" is a more palpable example for the amorphous neighborhood.[35] It poses a question of identity over time, whether the ship remains the same after all the parts of the ship are gradually or suddenly replaced. Most suburban American towns were incorporated as an entity, and Smith reminds us, "Four corners do not make a town, nor a few general or nationally known stores—gas stations—schools—public buildings—these being part of a workday world only."[36] A neighborhood exists while tiny elements are replaced and disappear temporarily substituting missing parts and it continues after the original settlers are gone, replacing it with the new generations or newcomers. The negotiation between the ever-changing neighborhood and the land is informed by landscape and bounded with the decay of previosly populated neighborhood conflating wilderness. In the new mode of subjectivity, Tony Smith criticized a static motionless quantified landscape in contrary to neighbor. Because, Scenes are not in harmony with the real, nor susceptable to "changing, casual or accidental phenomena such as light, nor even greatly in relation to the limitations of sensory perception. It exists ideally only as if in paintings. In and of the mind."[37]Although Smith inherited many formalistic architectural ideas from Frank Lloyd Wright, he disregarded Jeffersonian visions but embraced ontological evolutionary nature of neighborhood shifting between land and wilderness. Smith was clearly acknowledged the existence of the others such as Indigenious people in appreciation of its culture and land rather than assuming emptiness making such people invisible.

Sculpture

Smith wrote the essay "Two Cities, On the Way to a City" (1954) after a two-year stint in Germany and several other countries in Europe. In the essay, he compares the Greeks and Romans attitudes on architecture.[38] By comparing two ancient cities of Greeks and Romans, he reveals fundamental matters of attitudes in relation to its societal environment, and to nature.

A comparison of the architecture of the two ancient cultures shows not only the differences between each man's relation to his societal environment, but to his natural setting as well. Greek naos were encircled by colonnades through which one could see the sky. The rounded columns, of white marble, reflected the light around them, further integrating natural and constructed space. Roman temples enclosed and isolated an area of worship. Monumentally rectangular facades, decorated with darkened columns, opened up into grand interior spaces.… …The contrast between the former culture's architectural growth out of the land upon which something is built, and the latter's alienation from its outside environment and exploration of a totally man-made interior setting seems to mark a significant difference in the souls of the two cultures. (Smith 1954, Part II)

In resemblance to that of the Romans than of the Greeks, the individual temperament of our current society bears greater problems as the population grows in limit to build as it will eventually demand more individual lots, cells to demarcate its interiorized territories according to Smith. In search of urban interventions coping with urban issues, Smith imagines something in between scales of building and objects like his sculptures motivating a body and demarcating places. "But I am thinking of something closer to painting and sculpture in the sense of a juster balance between the solids and the voids, and one in which the voids became active with as much form and intention as the buildings… …I want something spatially closed, fluid, limpid, serene."[39]

Q: Why didn't you make it larger so that it would loom over the observer?

A: I was not making a monument.

Q: Then why didn't you make it smaller so that the observer could see over the top?

A: I was not making an object.

—Tony Smith's replies to questions about his six-foot steel cube[40]

Hal Foster once wrote that "Sculpture had contracted to the space between an object and a monument, the restrictive coordinates given by Tony Smith for his six-foot steel cube Die (1962). On the other hand, it had stretched to the point where great expanses could be contemplated as sculpture, or at least its sites; the notorious example, again offered by Smith, was the unfinished New Jersey Turnpike. Not a few artists became lost in the arbitrary realm of this expanded field."[41]

Figure 6. Tony Smith, Fixture (1966) Plywood mock-up, site specific 16' x 32' x 18' Temporary installation created to cover a permanently sited academic sculpture, Wadsworth Atheneum, Hartford, CT, 1966

Monument

The title of this essay "Monuments without Pedestals" is borrowed from a term by Richard Serra reflecting on the legacy of Tony Smith, whereas Serra stated, "The biggest break in the history of sculpture in the twentieth century, occurred when the pedestal was removed," an event that Serra views as a shift from the memorial space of monument to the "behavioral space of the viewer.[42] This shift initiated a new dialectical trajectory of artworks, semi-autonomous to site engaging with activated bodies, and in turn reframing landscapes. The concept of spatial continuum was drawn from the Smith's lecture at Skowhegan School of Painting and Sculpture in 1967 as a perceivable spatial boundary of one's daily activities.[43] The perception from the scale of a human body as it relates to the scale of a three dimensional thing—an object—between monument and ornament. And its proportions and sizes are attached therefore to the quality of intimacy and publicness.[44] For Smith, propositions as scaled sculptures took into account the nature of the grid—internalized spatial continuums in urban environments and to bring bodily intimacy and publicness together as one.[45]

During the exhibition Tony Smith: Six Sculptures at the Museum of Modern Art (1968–69), returning again to close with the interview by Rene S. Neu Smith shared some episodes that occurred during the installed sculptures in letters from different cities.[46] The quality of intimacy embedded in Smith's works appeared in many installed pieces around the globe remained in public memories. Direct reactions were evident. During the interview with Neu, Smith mentioned what he wants in reaction is an effective apprehension, rather than any sort of analysis, "almost as though they come into existence by some kind of spontaneous generation."[47] His added pieces were not in complete form, but

changeable as they are also sculptures in modus oparanti on different sites so as ontological nature of art and architecture.

The posed questions by Neu to Tony Smith contains emerging concepts such as minimalism, modernism, site specificity transitioning from the mode of modernism to post-modernism, and the new meaning of monument in North America context, and yet, Smith's answers are not perfectly fitting into any suggested conventional art catergories as it originated from lateral experiences and reading of society through the lenses of architecture, urbanism. As mentioned earilier, Smith stated that his ideas are much deeper than the work itself. And such thought were restrospectively investigated following his writings, trajectories crossing art and architecture. Either materialized or dematerialized, such trajectories led us to current public art, socially engaged art, and ecological environmental art insofar ecological, public engagement agency of architecture and urban practices that are blurring boundaries of disciplines and more provocative about social issues.

NOTES

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[12] Tony Smith, Interview by Rene S. Neu, July 25, 1968, transcript enclosed with the letter #7 August 5, 1968 from Rene S. Neu, Museum Exhibition Box1, Tony Smith Foundation Archive, NY.

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[14] Samuel J. Wagstaff, Jr. "Talking with Tony Smith," *Artforum*, December, 1966: 14-19.

[15] August Endell, *The Beauty of the Metropolis*, 2018.

[16] Laszlo Moholy-Nagy, *The new vision and Abstract of an artist (1928)* (New York: Wittenborn) 1947: 60-61.

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[30] Smith, 25.

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CAN PROTRACTED REFUGEE CAMPS BE LIVABLE? SELF-ADAPTATION PATTERNS OF REFUGEES IN THE ZAATARI CAMP

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INTRODUCTION

By the end of 2020, the number of forcibly displaced people reached 82 million individuals around the world with refugees (in a few words, define here how refugee differs from "forcibly displaced") composing 26 million of this number. Around 6.6 million of the world's refugee population live in refugee camps that emerge as aid landscapes meant to be temporary or transitional emergency settlements. Refugee camps around the world are created as a response to emergencies to provide temporary shelter, food, and basic needs to people who are fleeing conflict and suffering in their home countries.[1] Over time, many refugee camps often become protracted settlements, with some existing for several decades.[2]

In most cases, refugee camps are not permitted to develop into formal cities or self-govern much for political reasons, including policies of host countries, international agreements and disagreements, and domestic considerations.[3] Despite these constraints, the Zaatari camp in Jordan now holds 80,000 people after a peak of 120,000 one year after its establishment in 2012, rivaling many urban centers. Jansen argues that camps should not be addressed as temporary human warehouses, but as spaces where people can build their social networks and engage in economic life.[4]

Based on refugees' narratives and experiences, this study reconsiders both the visible and the invisible complex realities of protracted camps, investigating how refugees recreate their social and spatial life. The protracted nature of these camps makes it essential to understand how refugees reform their integrated physical home and social identity while in the camp. In addition, the inability of refugees to self-govern in these settlements has implications for the quality of life of the residents. Building on stories of three households, this study investigates how refugees adapt to life in these protracted camps by exploring the self-adaptation patterns of Zaatari camp's refugee households, determining how to improve the livability of a multi-generational, yet purportedly "temporary" settlement. Thus, this paper answers the following research questions:

1.   How do refugees in protracted camps such as Zaatari camp in Jordan recreate their social and spatial lives?

2.   What are the self-adaptation patterns exhibited by refugee households in the camp, and how do these patterns contribute to enhancing livability within the camp?

THEORETICAL BACKGROUND

This section explores livability in urban and neighborhood settings. Social and spatial livability encompasses factors such as social equity, economic support, safety, security, sociability, fostering social connections, providing essential services, promoting sustainability, and engaging residents, and sense of place[5]. Livability also focuses on the human experience, emphasizing shared social interaction and cultural engagement.[6]

Several factors contribute to the livability of a place, including a sense of place, appropriateness of settlement forms, and the creation of special places. Sense of place highlights uniqueness, compatibility with the landscape, the quality of the public spatial environment, landmarks, and accessible special places. Urban planning and spatial principles such as order, human scale, mixed-use, permeability, and spatial quality play vital roles in shaping livable environments. Achieving livability requires considering social, economic, spatial, and environmental dimensions while promoting inclusivity and a sense of place.[7]

Considering livability principles, examining the relationship between social space and physical space, as well as the social and spatial practices of refugees, is crucial in assessing the livability of camps. Recent studies focus on two main aspects of spatial practices: spatial appropriation practices and spatial reproduction patterns. Spatial appropriation practices involve human activities and daily routines that shape the use and meaning of existing or created spaces. Scholars[8] emphasize that spatial appropriation adds physical and symbolic significance to spaces and can transform the physical environment into meaningful places for inhabitants.[9]

Spatial reproduction patterns revolve around the creation and recreation of physical space. Nilsen defines spatial reproduction as the design of the built environment and the establishment of physical settings for human activity, with an emphasis on the linkages between physical spaces and the planning and construction processes.[10] Further, Elorduy describes spatial reproduction as the creation of exceptional contextualized spaces that fulfill living goals.[11] Al-Nassir et al. define spatial reproduction as altering physical space and redefining its territories and the recreation of spatial and physical structures.[12]

At the social level, social space is the result of group dynamics, with different access to economic, social, and cultural capital shaping the spatial order.[13] People play a vital role in organizing and impacting space through their own social arrangements and behaviors.[14] Factors that influence social behavior in space include creating boundaries, defining territories which refer to controlling what is inside and limiting access or excluding others,[15] practices of place attachment, resistance, solidarity,[16] and engagement in social and cultural activities.[17]

METHODS

This study uses the Zaatari camp in Jordan as a case study which is one of the largest refugee camps in the world. It is a home for more than 80,000 Syrian refugees and it has more than 26,000 occupied shelters. It was established in 2012 close to Jordan's northern border with Syria.[18] Data for this paper is part of larger research project collected through field observation, on-site documentation of shelter layouts, and face-to-face in-depth interviews with 64 households from the Zaatari camp. Three households were randomly selected for this paper. Interviews were conducted in August 2022.

The first interviewed household consisted of five members, including a 59-year-old head. In the second household, with ten members, the researcher interviewed the 38-year-old wife. Both of the first two households originated from Reef Daraa in southern Syria. The third household, with 16 members, originated from the suburbs of Damascus. The layout of the three shelters is illustrated in Figure 1.

Figure 1. Interviewed Households

Data was qualitatively analyzed following Saldaña's[19] qualitative coding methods. This analysis was primarily based on process and descriptive coding while incorporating emotions and values for the first cycle of coding. For the second cycle, pattern coding was used, and codes were grouped into categories and then were identified into themes. For data analysis purposes, Atlas.ti 23 qualitative data analysis software was used to manage the data and do the analysis.

FINDINGS

The following themes emerged as patterns of social and spatial adaptations: (1) spatial adaptation practices, (2) social adaptation practices, (3) socially informed spatial practices, (4) cultural identity, cultural change, community and social change, and mental distress.

Spatial Adaptation Practices

The participants in the study reported a variety of actions they took to improve their physical environment, specifically their shelters. Each household lived in a shelter that began as a tent but was eventually replaced with prefabricated units, locally referred to as "*Caravans*" made from more durable ?plexiglass? materials. Despite the challenging circumstances of having few financial or social resources, the refugees demonstrated remarkable resourcefulness in transforming their shelters into more livable spaces using available materials such as prefabricated units, corrugated sheets, and leftover tent fabrics.

Over time, many participants experienced significant and incremental improvements in their physical environment and living spaces compared to their lives before displacement. Despite limited resources, they used innovative and simple methods to move their prefabricated units by rolling them on empty cooking gas cylinders or lifting them onto a locally made structure constructed from reclaimed metal beams attached to wheels. These creative solutions demonstrate the participants' resilience and adaptability in the face of adversity. Two participants in the study demonstrated impressive coping mechanisms in their efforts to create a livable space in the refugee camp. Despite strict regulations prohibiting the use of permanent construction materials and limited access to resources, one participant reported using the boundaries of existing public structures, such as the communal kitchens, to create the initial boundaries of their own shelter. This resourceful approach allowed them to carve out a private living space within the constraints of the camp.

Another participant who lived in close proximity to one of the camp's communal kitchens found a day job working for an NGO in the camp. His job involved maintaining the cleanliness of the kitchen and replacing cooking gas cylinders as needed. During severe weather conditions, he used the kitchen as a makeshift shelter, saying "*When the weather was particularly severe, we had no choice but to sleep in*

the communal kitchen. Although it was not the most comfortable space made from concrete walls and metal sheets roof, it provided us with a safe haven during rainy days." This participant's adaptability and creativity allowed him to find shelter and make the most of the available resources in the challenging conditions of the camp. Participants also found difficulties to adjust to the weather conditions in the camp. According to the participants, who came from the fertile agricultural regions of Syria, adjusting to the desert climate of the Zaatari camp proved to be a big challenge. The visible contrast between the agricultural green nature of their hometown and the dry, arid surroundings of the camp proved to be a difficult transition for them.

Social Adaptation Practices

The analysis revealed a set of social practices inside the camp including desire for social interaction with peers, social isolation, rejection of social diversity, and trust. The revealed social practices suggest that the participants may have had varying levels of social support and may have experienced challenges related to building or maintaining social relationships.

On the positive side of social adaptation practices, participants expressed their desire to maintain close relationships with their family members and relatives while exhibiting a lack of trust in the broader community. However, at the micro-community level, a sense of social solidarity and trust emerged that was absent at the larger social level. This was evident in the practices of two participant households residing within a fenced-in housing cluster, where they developed a strong bond based on mutual trust, reciprocity, and social solidarity. One participant said "*Our shelters do not have a dividing fence between them. Our neighbor is a genuinely kind and trustworthy individual, who is also a close relative. He always has our best interests at heart.*" His wife added "*We trust each other. When we need to leave the house, we rely on her to keep an eye on it, knowing that she'll take care of everything. We're aware of her daily routine, including when she leaves and returns home and where she keeps her house keys. We trust each other. We exchange help and assist each other with various tasks and services when required.*" These attitudes demonstrate the strength of the micro-community's social bonds and trust, which were absent at the larger social level.

This study also sheds light on the negative aspects of social practices, as participants exhibited behaviors that led to social isolation and social frustration such as discomfort with social diversity, avoiding social conflicts, and daily life challenges and struggles. All participants expressed their discomfort with the presence of social diversity in their community, manifested in the form of having neighbors from different villages in southern Syria rather than from their hometown. This lack of shared background, norms, and commonality was a source of unease for the participants, further contributing to their sense of social isolation, sense of unfamiliarity and discomfort among neighbors. One participant said "*We do not have any relatives in the neighborhood within the camp. Our neighbors are only individuals who share the locality with us, and they do not belong to our hometown. We do not have any neighbors here who are from our hometown*" and another participant also said "*For instance, in my locality, one household comes from Hirak, another from Maarbah, and a third from Mahaja, while the one right there is from Busra. This lack of homogeneity is a reason that leads people to avoid each other and isolate themselves socially.*"

The emerging social practices and family dynamics highlighted the significance of family in shaping refugees' experiences in the camp. Interviews suggest that they prioritize family, and they tend to distance themselves from other members of the community to ensure the well-being of their family. They developed a social behavior that revolves around their family, and they reported that engaging with the broader community often leads to social conflicts and disagreements that they prefer to avoid. These conflicts encompass disputes over space ownership and issues tied to privacy, such as intrusive surveillance and overlooking the private spaces of neighbors. One participant said "*It's*

incredibly difficult to be separated from one's family, siblings, and close relatives. We rarely venture beyond the doorstep of our house and avoid any interaction with our neighbors. My husband dislikes social conflicts, and he instructs us to do the same and stay home." These results underscore the central role of family in the social lives of refugees and the challenges they face in navigating social interactions outside their family circle.

Socially Informed Spatial Practices

Based on the social and physical circumstances that participants faced while in the camp, they demonstrated a strong desire to stay indoors and socially isolate themselves from the surrounding community, which could be related to discomfort with the surrounding environment, and as an attempt to maintain a sense of familiarity and security in their living spaces. Moreover, Participants' pre-displacement rural lifestyle, which was so-much family focused, played a significant role in their experiences and perceptions of the camp's environment, and contributed to their discomfort and desire for isolation. Consequently, they made conscious efforts to establish micro-communities within the camp that mirrored their pre-displacement rural lifestyle. The spatial configuration of "fenced-in housing clusters," as depicted in Figure 3, is an evident manifestation of this phenomenon.

Additionally, the refugees' tendency to avoid interaction with the broader community and prioritize their families resulted in the development of certain behavioral patterns, including territoriality and a desire for privacy. This was manifested in their spatial arrangements, with refugees constructing high fences around their shelters and creating large front and backyards enclosed by fences. These yards served as a private space for families to spend time together without leaving the safety and familiarity of their territory.
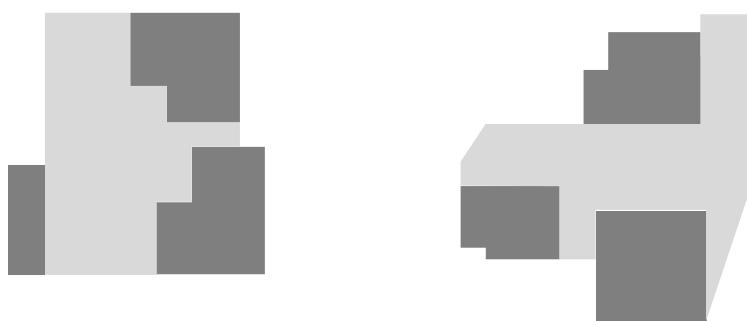
Figure 2. Fenced-in Housing Clusters

Cultural Identity Cultural Change, Community and Social Change, and Mental Distress

The analysis revealed a set of findings related to social, communal and cultural issues, such as change of gender roles, social norms, change of communal and familial values that came out as the effect of the camp environment on the refugees' social behaviors and values. Participants reported their feeling of frustration about the shift in gender roles, with women now needing to find low-paying jobs to support their households, whereas in their hometowns, they only worked in family-owned businesses and never accepted work from others. Moreover, participants noted that communal values have changed in the camp, with many people showing disrespect towards their neighbors, community members, and even senior household members. This emerging communal practice has developed from the frustration of living in the camp. One participant said "*We were never like this! Our community used to be organized based on mutual respect and didn't rely on rules and laws*."

The available data also revealed that mental distress is a significant and prevalent theme among the study participants. During the conversations with them, a range of complex emotions and challenges

related to displacement, social isolation, and struggles with adapting to their post-displacement life were expressed. Those emotions include helplessness, anger, anxiety, and fear that are related to safety and an uncertain future. Participants also expressed feelings of overwhelm, uncertainty, frustration and dissatisfaction with living conditions, lack of resources and daily life restrictions.

DISCUSSION AND CONCLUSIONS

In conclusion, this study sheds light on some social and spatial adaptation patterns that refugees in the Zaatari camp have developed. Refugees transform their shelters in innovative and resourceful ways to create livable spaces in challenging conditions. The refugees in the study used simple but creative solutions to improve their physical environment, demonstrating resilience and adaptability in the face of adversity. In terms of livability, the residents create a sense of place, create special places and recreate existing spaces to make an appropriate settlement and shelter form as described by Dewar and Franovic & Andrew.[20]

Remarkably, the study highlighted the significance of family in shaping refugees' experiences, as participants prioritized family and distanced themselves from other members of the community to ensure their well-being, which resulted in the development of certain behavioral patterns, including territoriality and a desire for privacy. Those social practices demonstrate signs of creating livable community at the family level and foster social connections at the small scale that are explained by Caves & Wagner and Franovic & Andrew.[21] On the other hand, the study also revealed negative aspects of social practices, including discomfort with social diversity and social isolation, which led to social frustration and social anxiety and to establish micro-communities and "fenced-in housing clusters" within the camp. Those practices do not comply with Caves & Wagner, Franovic & Andrew, and Dewar[22] definitions of livable spaces and communities that entail creating inclusive, cohesive, and sustainable communities, enhancing the human experience, and emphasizing shared social interaction and cultural engagement.[23]

These findings suggest that the refugees in the study do not fully perceive the camp as a livable settlement and the community as a livable community. It highlights the need to address social frustrations, promote inclusivity, and support the mental well-being of refugees to create truly livable spaces and communities within the camp context.

FUTURE RESEARCH

Given that the study focused on social and spatial adaptation patterns, the findings raise some crucial questions: Are the refugees' practices a function of adaptation, or are they a form of surrender? What other forms of adaptation could be found in the camp? What are the reasons for social fear? What can the aid organizations do in order to increase the quality of life for the residents? How can current social and spatial practices inform strategies to improve the livability of the camp? These questions underscore the complexity of the situation faced by refugees and emphasize the need for further research to fully understand their experiences. As this study includes a small sample from the Zaatari camp, those questions would be answered through further analysis of the larger sample size that was collected for the main study.

NOTES

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[20] Dewar, "The Case of Cape Town, South Africa"; Franovic and Andrew, "Place-Making and Livability in Ottawa and the National Capital Region."

[21] Caves and Wagner, *Livable Cities from a Global Perspective*; Franovic and Andrew, "Place-Making and Livability in Ottawa and the National Capital Region."

[22] Caves and Wagner, *Livable Cities from a Global Perspective*; Franovic and Andrew, "Place-Making and Livability in Ottawa and the National Capital Region"; Dewar, "The Case of Cape Town, South Africa."

[23] (Caves & Wagner, 2018; Franovic, A., & Andrew, C., 2018)

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IN-BETWEEN REAL SPACES AND ARCHITECTURAL -TOPIAS: A CRITICAL INQUIRY ON METATOPIAS

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INTRODUCTION

Throughout history, architects have searched for a livable city to transcend the pernicious urban conditions, propose alternative urban life for better living, and extrapolate various intellectual and practical frameworks for executing them. In doing so, utopia and its antithesis, dystopia, act as a way to envision either livable or non-livable cities. Architectural theorist Gizem Deniz Güneri highlights architectural utopianism -a discursive, epistemological framework for architectural utopian thinking- that 'challenges established settings, and situations perceived as problematic or insufficient, and must be considered further.'[1] In line, architect Jane Alison et al. point out the future city's importance within such a framework, underpinning the architect's endeavors in 'rationalizing city as multifarious organism into well-functioning and livable place for their inhabitants.'[2] The contemporary world is defined by complexity, uncertainty, and indeterminacy. Within that, architectural historian Manfredo Tafuri claims 'the city becomes an open structure,' whereas traditional architecture is a 'stable' one, 'giving form to permanent values and consolidating urban morphology.'[3] As a result, architectural visions for ideal and livable cities through utopias and dystopias reduce to architecture and its formal means, failing to render simultaneously and comprehensively the whole because of the scant inclusion of other urban faculties. An open-mediated, adaptive, and responsive architectural medium is needed.

The paper aims to ascertain such a medium by reinterpreting the Metaverse in proposing a contemporary Metatopia. Metaverse is an open medium that allows plurality through the participation of diversified users. Despite its frequent use in recent years, Metaverse is still in its infancy and is understudied from different theoretical and epistemological perspectives. The paper aspires to redefine the Metaverse to formulate a plausible livable city within utopian thinking. It exploits its condition of being in-between due to its openness that incorporates and benefits from the antipodal phenomena; utopias and dystopias, real and virtual, tangible and intangible. By scrutinizing Patrik Schumacher's Metaverse Urbanism through Project for Public Spaces' (PPS) 'What Makes a Great Place?' measures that investigate the conditions of placemaking, the goal is to reformulate Metaverse as a Metatopia that mediates the visions of idealized societies of utopias and dystopias with the virtual platform for contemplating innovative and transformative urban futures. Within that sense, the paper critically inquires how the evolving Metatopia could entail a novel and operable medium, amalgamating the livable virtues of 'topias' while avoiding being restricted by one.

METAVERSE

For an extended period, future-oriented utopian and dystopian constructs in urban contexts were confined solely to descriptive narratives. In this regard, architects Michael and Bracha Chyutin state that 'the vision of the ideal city often depicts a static state as an aspiration to transform a city into a flawless work of art, freezing time and impeding progress-a fixed image that resists change.'[4] However, the digital progression in architecture has transformed this rigidity, shifting from static to dynamic and interactive mediums. This transformation has nurtured creativity and provided architects with novel tools to vividly portray their visionary city images. Consequently, these developments have accelerated the evolution and transformation of utopias, bridging the gap from mere idealized concepts '(u-topia) to more attainable and desirable visions (eu-topia).'[5] The shift has led to reconsidering utopias concerning place, which now exhibit new characteristics that reflect the rapid change we currently encounter. According to architectural researchers, Nick Dunn and Paul Cureton, 'the ubiquity of the word future underscores the rapidly transforming landscape, wherein previously perceived certainties such as ecological stability and sociocultural patterns are becoming increasingly complex.'[6] This shift in perception urges new approaches in envisioning architectural utopias, including ecotopia, 'a home place that encompasses ecological principles',[7] labortopia, 'envisioning where labor plays a central role in societal well-being'[8];technotopia, embracing the transformative potential of technological advancements and its complex relation with the social environment; cybertopia, exploring the integration of technology and virtual realms into urban spaces and 'developing alternative realities.'[9]

Over time, the manifestation of utopias and dystopias has evolved from verbal narratives to a blended medium that incorporates visual representations. Architects like Le Corbusier in *Ville Contemporaine* (1922) and Rem Koolhaas in *The Wall* (1972) have utilized drawings to manifest their visions and create tangible images of these utopian ideals. The shift from verbal narrations to visual expressions allowed a more immersive exploration of utopian and dystopian concepts within the architectural realm. This shift can be traced back to the early 1900s, when the movie Fritz Lang's *Metropolis* (1927) laid the groundwork for visualizing architectural speculation and reflecting societal concerns, thereby exploring the possibilities of future built environments.[10] Although cinema demonstrates a person's imagination and cannot represent a collective vision, it ignited the digital progression that bridged the gap between utopian/dystopian narratives and their architectural counterparts. Thus, it empowered the realization and exploration of dynamic and experiential urban futures.

In architecture, digital tools have opened novel horizons after the digital turn in the 1990s. Architectural theorist Mario Carpo states that the building in the digital age is not the direct output of digital tools but, instead, the one that 'could not have been either designed or built without them.'[11] Consequentially, digital tools revolutionized architecture and fostered paradigms like Parametricism. Though architects embraced it for the physical built environment, they overlooked digitally constructed spaces despite relying on digital apparatuses. Stemming from the gaming sector with the advent of 3D modeling software and then later enhanced further with the world wide web, creating virtual space mainly pertained to the endeavors of game designers, programmers, and users. *The Sims*, 2000 and *Second Life*, 2003 were incipients in gaming that enabled users to create virtual environments with the utmost freedom, using predetermined elements. Architect Andrea Moneta broaches the architect, urban designer, and landscape designer's absence in these processes, criticizing the virtual space as devoid of 'cultural and social interaction, aesthetic appreciation, and philosophical engagement.'[12] Indeed, 'the architecture of the virtual space needs its theory and practice.'[13]

Architects now have powerful tools to manifest their visionary -topias. Metaverse is one of them, incorporating immersive virtual space, augmented and hybrid realities, and worldwide communication networks. 'Metaverse' was first used in Neal Stephenson's 1992 novel *Snow Crash* to describe a

'computer-generated imaginary place' separate from the real world.[14] However, space creation is alike. Nascent in those days, now Metaverse is an apotheosis of digital worlds. With 'offering real potential in urban planning circles, entertainment spheres, and digital business worlds,' researcher Zaheer Allam et al. imply that Metaverse attracted big-data companies such as Meta and Microsoft.[15] Against this, computer scientist Simon Elias Bibri criticizes the corporate-driven design of social reality in the Metaverse, 'an overall reconstruction of the material and social world through proposing virtually reorganized cities, leading to erosion of ethical, humanistic, and cultural values.'[16] Social scientist Olivia Bina et al. underscore 'diverse and plural imaginaries,' eluding 'techno-utopian fantasies' for a socially engaged techno-future.[17] Urban design practitioner Alessandro Aurigi believes we should be responsive and attentive against the 'challenges of Metaverse-rich and place-poor smart urbanism.'[18] He warns about the technology's 'clear risk' of eradicating context, locality, and place, making Metaverse anti-urban.[19]
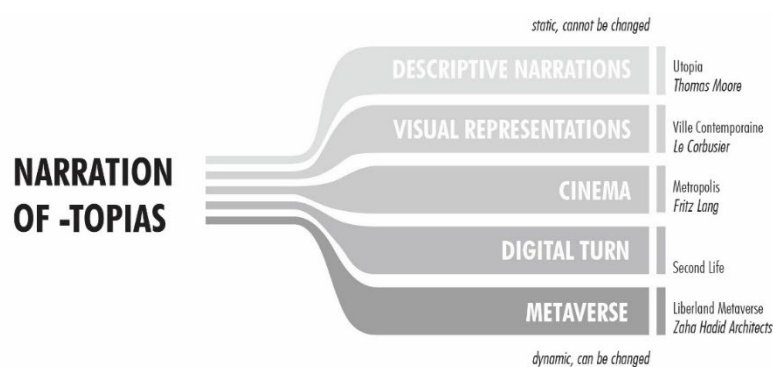
Figure 1. Narration of -Topias, diagram created by authors.

METHODOLOGY

The paper methodologically adopts Project for Public Spaces' (PPS) 'What Makes a Great Place?' framework with four elements -sociability, uses&activities, access&linkages, and comfort&image- having further subdivisions.[20] Since these are for physical places and too broad for utilization, this study redefines them within the Metaverse and architectural utopianism, establishing an intermediary and differentiated framework that would analyze the existing Metaverses, define their inadequacies in being '-topia,' and outline future scenarios for more livable built environments, leading to Metatopia.

Sociability

For PPS, sociability incorporates places that are 'welcoming, interactive, friendly, neighborly, cooperative, and diverse,' fostering social interactions meanwhile accommodating social activities to ensure that.[21] Constructing the fundamentals for sociability, PPS filters well-known societal frameworks by George Simmel, Ray Oldenburg, and William Whyte. Architects Iderlina Mateo-Babiano and Gini Lee claim that 'no matter what placemaking framework is being used, the main concern is people and their human experience.'[22] In Metaverse, continuing this line of thought, the communication between configurable personal avatars is crucial to ensure sociability, therefore, a sense of place.

Uses&Activities

Various uses&activities are necessary to sustain the place's sociability. According to PPS, 'more activities means more participation,' thus, increasing social interaction and communication.[23] With the traditional space's transformation due to technological developments, the interaction with digital

interfaces also became significant in defining a place. In the 21st century, as architect Patrik Schumacher underlines, the city transforms into a 'seamless web of spaces,' where uses and activities proliferate.[24] In Metaverse, the experience is ephemeral. Therefore, Metaverse places have limited time to attach people to their uses and activities for manifesting a 'topia.' Moneta states that 'history is not tangible, but it does live within individual memories, which reproduce over time to produce cultural memory.'[25] Accordingly, Metaverse needs its own culture reproduced with uses and activities.

Access&Linkages

For successful physical spaces, PPS remarks 'continuity, proximity, connectedness, readability, walkability, and accessibility.'[26] Individuals should reach places safely and soundly without any hardships. Instead of creating urban enclaves, successful places should integrate with their surroundings, extending and ushering the urban activity without interrupting visual and physical continuity. These concepts are somewhat different in Metaverse since the accepted spatiotemporal notions of physical are invalid. Users could teleport their avatars to any location by clicking from the menu. So, unless prohibited by admins, all spaces in Metaverse are reachable to everybody with Internet access. Geographer Edward Relph suggests that whether virtual or not, places should have a 'strong visual identity,' championing the likes of Kevin Lynch in designing virtual places.[27] To navigate and orient in the virtual place like in the physical, the individual requires a logical unfolding of spatial experiences.[28]

Comfort&Images

Comparing the definitions of PPS, access&linkages, and comfort&images are closely related regarding the place's visual identity. However, the two part in defining the visual construction. The former is about approaching the place, while the latter is the image of it. For PPS, comfort&image incorporates the aesthetic merits of the place, being 'historic, attractive, charming, spiritual, clean, green,' with the comfort, presenting a 'sittable, walkable, safe' environment.[29]Metaverse's image is fundamental to generating a 'topia.' Moneta suggests that virtual architects should design with preexisting historical elements with cultural memory enduring in users to elicit historic, attractive, charming, and spiritual.[30] Although creating a familiar image is acceptable, a thin line exists between becoming kitsch and emulation. For example, greenery becomes an image in Metaverse since it has no functional correspondence like decreasing CO_2 levels. However, the image of it per se may engender serenity. Secondly, the comfort in Metaverse deviates from the physical space. The virtual avatars do not need to sit, walk, and be safe unless programmed otherwise, like in The Sims, where the avatar has real-life requirements. Comfort depends on how users smoothly experience the Metaverse without any significant lag or frame drop.

REALM / P PS MEASURES	PUBLIC SPACE	METAVERSE
SOCIABILITY	Communication Between Individuals	Configurable Personal Avatars
	Static Social Events	Dynamic Social Interactions
	Voluntary Use and Regular Connections	Virtual Engagement and Instant Relations
USES & ACTIVITIES	Physical Spaces	Digital Interfaces
	Long-lasting Experiences	Ephemeral Experiences
ACCESS & LINKAGES	Continuity & Proximity	Teleportation
	Readability and Walkability for Easy Access	Reachability to All Spaces with Internet Access
	Visual Identity for a Sense of Place	Navigating through Spatial Experiences
COMFORT & IMAGE	Historic, Attractive, Charming, Spiritual, Clean, Green Places	Historic, Attractive, Charming, Spiritual, Unlagged, Green Representations
	Comfort Measures: Sittable, Walkable, Safe Environment	Smooth User-Experience, High-Speed Connection

Table 1. 'What Makes a Great Place?', Measures for Public Spaces and Metaverse, created by authors.

METAVERSE URBANISM

Metaverses could be examined to determine whether they are a Metatopia and improved through the PPS's framework. Today's Metaverses lack these qualities because they exclude architecture to allow ultimate freedom for their users. Exemplifying Decentraland, computer scientists Barbara Guidi and Andrea Michienzi delineate that 'the main feature of it is the virtual world that is divided into parcels, implemented through NFTs, that can be traded among users and where owners can create buildings or mini-games for other users to play with.'[31] Users turn Decentraland into an enthalpies of unique interventions resulting in fragmented, less successful places. The problematic one-sided utopian approaches that flatten everything for a particular group's sake come back but now conversely. To reenact urbanism and architecture in Metaverse, Patrik Schumacher, the head of Zaha Hadid Architects, within his design studio in Architectural Association (AADRL) and under the office, started to work on Metaverse Urbanism. Schumacher promulgates twelve theses, forming a Metaverse Urbanism manifesto.[32] With it, Schumacher aspires to exploit physical and virtual spaces to offer an enhanced and mediated reality foreseeing a future where the human race would live in both realms seamlessly and productively. Despite comprehensive theoretical formulations, encouraging research, and inspiring projects, Metaverse Urbanism is still in its burgeoning stage, waiting to be tested further. The paper examines Zaha Hadid Architect's latest Metaverse design proposal, Liberland, under the PPS framework to evaluate and reach Metatopia.

LIBERLAND METAVERSE

Liberland is a 'real-life micronation' founded on 13 April 2015 by politician Vit Jedlicka between Croatia and Serbia.[33] According to the Free Republic of Liberland's website, it occupies an unclaimed territory -*terra nulius* - a no man's land.[34] For context, Zaha Hadid Architects 'created a digital replica of the physical micronation.'[35] 'Liberland Metaverse' would be a 'cyber-urban incubator, facilitating crypto exchange, virtual ownership, and digital avatar experience.'[36] To avoid the mistakes of utopian and dystopian modernist planning practices, Schumacher for Liberland, although similarly constructing on a *tabula rasa*, offers a 'plurality of planning regimes rather than a single one.'[37] Until this point, Schumacher's 'Liberland Metaverse' aligns with Metatopia's objectives. However, there are considerable downsides as well, such as his earnest insistence on Parametricism, which in a way, homogenizes the user's design plurality. PPS's digitally enhanced placemaking will be applied to Liberland to evaluate the possibility of Metatopia further.

Sociability

Schumacher suggests that Liberland 'embraces realism, that it becomes part of societal reality and an integral part of social production and societal reproduction.'[38] 'Liberland Metaverse' has multiple primary public spaces; Liberland City Hall, DeFI plazas and incubators, NFT plazas, and Exhibitions organized around finance. How personal digital avatars in these spaces will interact with each other despite Schumacher's emphasis on the dramaturgical framework, apart from crypto transactions, is currently in limbo. No matter how Metaverse relates to the corporeal places with real-life users, since it has its discourse, according to sociologist Wisnu Buana, it would cast its 'culture of society.'[39] 'Liberland Metaverse' has not yet opened its doors to a large audience, according to 'Liberland Metaverse's' website; as a result, devoid of feedback.[40] In that sense, whether it would thrive in sociability is waiting to be resolved, but the existing condition demonstrates rather a paradoxically reduced social environment.

Uses&Activities

Uses&activities ensure sociability according to PPS. Gaming, one of the leading sectors in Metaverse, encourages uses and activities while also prompting earning cryptocurrencies. Schumacher locates the 'Liberland Metaverse' away from gaming Metaverses like Decentraland, claiming that Liberland is 'part of societal reality.'[41] For him, it is a 'high-performance work environment for an industry-specific cluster of creative start-up companies.'[42] However, users not from such industries may not want to get involved. Moreover, those lacking crypto funds may be excluded from blockchain ecosystems and alienated from Liberland's functions. This segregation could create digital ghettos due to financial gentrification, damaging the establishment of 'topia.' Accordingly, architect Kas Oosterhuis names Liberland 'techno-feudal,' where the tech companies' interests supersede social concerns.[43] Another critical issue for Metaverses is how they interpret the term: ideal. Since Metaverses are dynamic and ever-changing, they struggle with the concept of ideally established activities. Against the ephemerality, Liberland may be too frozen by requiring urban parametric top-down restructuring for adaptation.

Access&Linkage

We believe this, at least in the initial stages of metaverse development, allows for the fullest exploitation of the city analogy, utilizing our innate and learned intuitive cognitive capacities with respect to orientation, wayfinding, and the reading of subtle aesthetic, social atmospheres, and situations.[44]

Dissenting Schumacher's Metaverse approach, many under Alice Finney's Dezeen post question why we need buildings, streets, greeneries, and even gravity while we can do whatever we like in Metaverse, flying, teleporting, and so on.[45] To fathom a particular place, one needs to know its edges, connections, and distances to orient, navigate, and order, following the PPS framework.[46] Without those, as Schumacher would also agree, spaces become too aberrant for human cognition. Due to this, for 'Liberland Metaverse,' Schumacher and his team embrace architectural concerns of the real world, with minor alterations such as structural integrity in a few spaces. Parametricism's accesses&linkages in urban space align with PPS's 'continuity, readability, connectedness, convenience' for 'topia.'

Comfort&Image

Liberland's image comes from its corporeal geographical conditions. Without intervening, Schumacher and his team imported the exact topographical situation. By this, Zaha Hadid Architects carry the memory of the place to Metaverse, making residents comprehend it quickly and creating a sense of attachment and belongingness. Despite conserving existing, they offer a parametric urban typology, manifesting the future city. Schumacher states that Parametricism 'is congenial with the ambitions of the Metaverse and will become the preferred style here.'[47] However, the image that it creates is not yet tested to determine whether it triggers place identity or not so in-depth. PPS' expectations of a successful place under this pillar require a historic image currently missing in Liberland's proposal but definitely would evolve through digital avatars. We do not claim that this would directly damage the quality of being in place, but as Relph clarifies, the 'familiarity' of virtual spaces is crucial to engendering a 'sense of place.'[48]
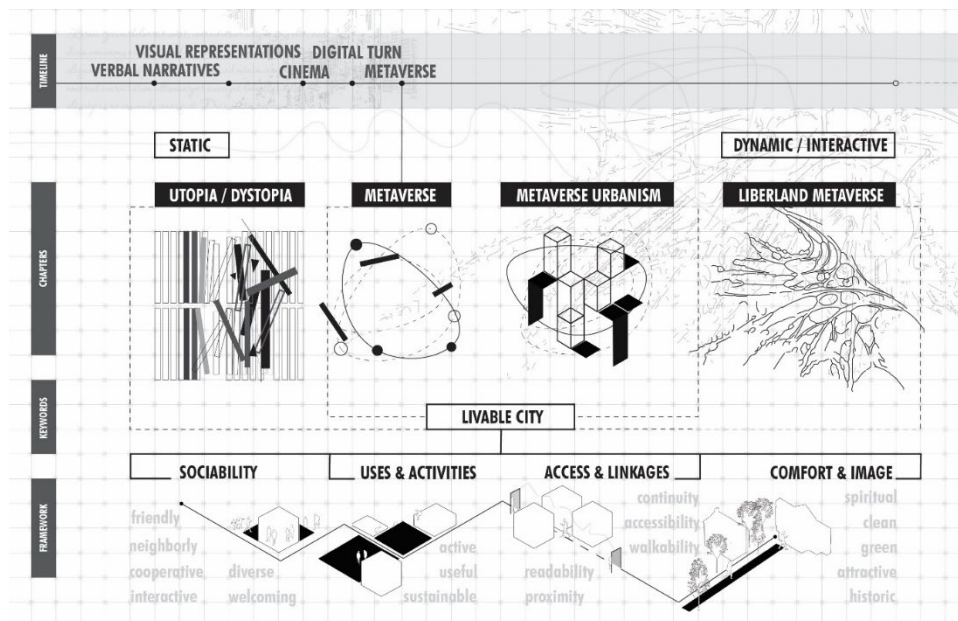
Figure 2. From Utopia to Liberland Metaverse, conceptual diagram created by authors benefitted from courtesy of ZHA for Liberland Metaverse (https://www.archdaily.com/978522/zaha-hadid-architects-designs-cyber-urban-metaverse-city.)

CONCLUSION

By examining 'Liberland Metaverse,' the paper discussed the possibility of Metatopia, a mediated vision of creating places in digital realms. Liberland's place qualities studied under PPS shows that it lacks sociability, uses&activities, and partially comfort&image. However, it is still a work in

progress, and compared to other Metaverses where there is neither urban designer nor architect, it is successful and *au courant* in defining how a digital place could be achieved progressively. Indicating the pros and cons of 'Liberland Metaverse' within the methodology, the paper aims to outline a desideratum for Metaverse through Metatopia proposal, avoiding ideal and, because of this, problematic utopian and dystopian images that urban designers and architects construct for *tabula rasa*. Metaverse allows the inclusion of users while generating a place, a rather bottom-up approach, but it also warrants the provision of professional designers with top-down understanding. In line with 'Liberland Metaverse,' defining a comprehensive framework for Metatopia would contribute to reaching a digital 'topia,' in a manner a eutopia, which is desirable and attainable. Without seeking a 'topia,' Metaverses would eventually cause the same problems we have faced for centuries in constructing an ideal place against the instigation of changing and transforming living standards due to innovative envisioning and future-oriented visions
to improve the quality of life.

NOTES

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IN SEARCH OF A SOCIALLY RESPONSIVE ARCHITECTURE FOR CAPE TOWN: ARCHITECTURAL IMAGININGS OF CAPE TOWN'S FORESHORE PRECINCT

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INTRODUCTION

Cape Town is known for its postcard setting, nestled between Table Mountain and Table Bay, with affluent neighborhoods that snake along its mountain sides. But Cape Town is also known as amongst the most unequal cities in the world.[1] The city is still spatially locked into an apartheid urban planning arrangement with the middle- and upper-class concentrated in well-resourced and well-connected neighborhoods and the poor caught in the poorly resourced and poorly connected urban periphery. How to overcome the apartheid city and to reverse the spatial legacy of apartheid remains one of the most pressing questions in South Africa. Access to well-located affordable housing is an important mechanism to breaking the established inequalities and counts among the key challenges faced in the development of South African cities. The city's constitution – through its policies and spatial development frameworks – fully promote the ideal that people of all economic means must have access to and opportunity to live in the city center.[2] However, living in the city center is beyond the economic means of most citizens.

In 2016 the City of Cape Town launched an ambitious foreshore rejuvenation tender competition to address this challenge. The project brief called for a balance between development for profit and social good and required the inclusion of affordable housing. Ambitious in scope and program, the projects aimed to position Cape Town as a future focused, progressive yet socially inclusive city. This paper critically considers the six projects submitted against a matrix of criteria of what would constitute a socially responsive architecture for this city. It explores the degree to which the city's intention for the project was met in the bidder's proposals for the city.

The making of Cape Town's foreshore

The development of Cape Town's central business district has always been tied to sea and mountain.
The historic colonial city grew over a 250-year period but by the early decades of the 20th century the city experienced major urban transformations due to increased urbanization and the effects of modern technologies and infrastructures.
The early years of the 20th century also marked the first deliberate and formal racial segregation of citizens with the removal of black dockworkers to newly established townships on the edge of the city.[3] This established a pattern that still marks the city to this day, namely that those with the least means live the furthest from opportunities.

By the 1930's the city, bounded by mountain and sea, had literally become strangled in the physical material of modern infrastructure of rail lines, tram lines, roads, and harbour functions. To relieve this pressure, the city launched the Foreshore Scheme – a bold urban project that reclaimed 200 hectares of land from the sea. Dredging commenced in 1938 and was completed by the mid 1940's, effectively doubling the size of the central business district. Cape Town's Foreshore – this reclaimed land in-between mountain, sea, and city – in this paper, serve as a place from where to explore and contemplate the city across time and space (Figure 1). The newly claimed land, as a *tabula rasa*, opened a space to imagine the city in a new way. How was this done?

Figure 1. Undeveloped reclaimed foreshore of Cape Town, late 1940's. Source:
https://i.pinimg.com/736x/94/80/b0/9480b0d814de15677ad4261aa6930f5a.jpg

In 1932, a local businessman Andrew Allen offered the city his proposal of an urban scheme for the proposed reclaimed land (Figure 2).[4] Allen's city is completed with low-rise Parisian-style perimeter blocks. He proposed to reinstate the Castle of Good Hope, the oldest colonial-city structure dating from the late 1600's, as a significant historic landmark and to reconnect the city and sea by way of a leisure bay for yachting and rowing.
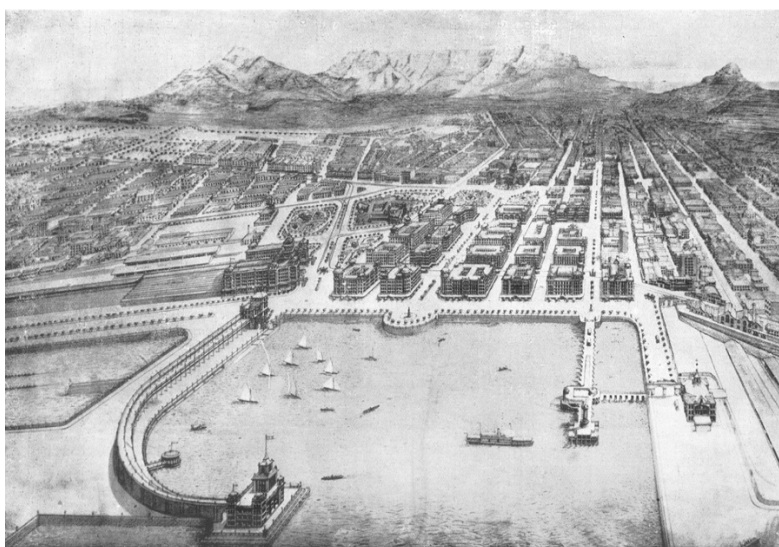
Figure 2. Andrew Allen's foreshore proposal, 1932. Source: Allen, 1932, pg. 30

If Allen's romantic and polite proposal can be said to reflect a privileged way of being and dreaming in early 20th century Cape Town, the 1938 Scheme for the Business Centre of Cape Town produced by the Transvaal Group – a group of Johannesburg architects – proposed to forcefully project the city into the modern world (Figure 3).[5] The Transvaal Group had a dim view of Cape Town, characterizing it as a conglomeration of sprawling, ill-considered buildings that grew like a fungus along the seashore and mountain slopes.[6] The city, in their view, was simply not planned for the necessities of modern life and its complex problems could no longer be dealt with by odd, indiscriminate, and petty reforms. Their project, prepared in line with Le Corbusier's urban theories that regarded the city as a body to be operated on, was thoroughly surgical in the severity with which it proposed to obliterate most of Cape Town's historic fabric.[7]
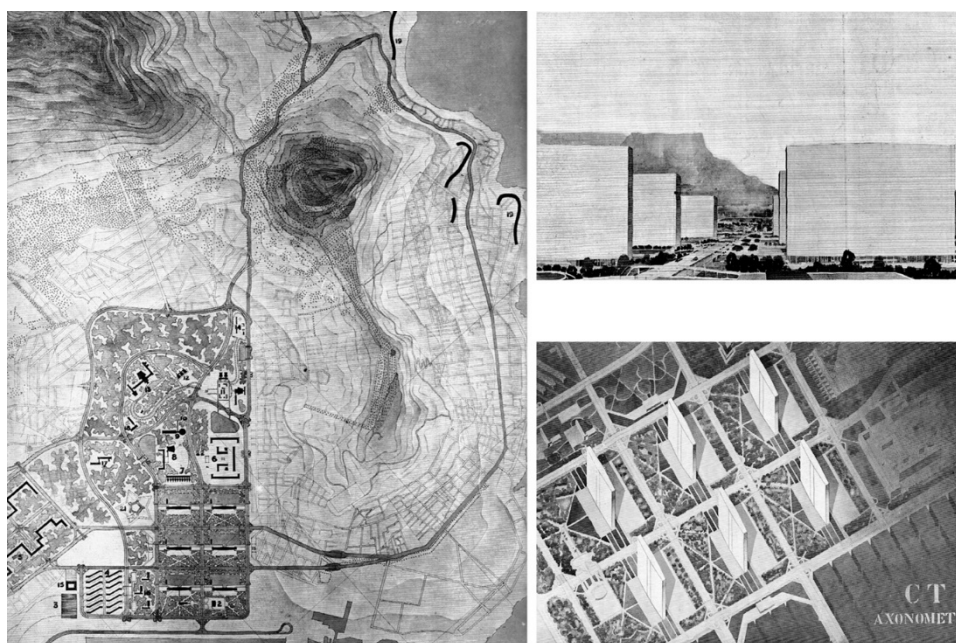
Figure 3. Scheme for the Business Centre of Cape Town, 1938. Source: Hanson, 1938, pg. 52

If the Transvaal Group Scheme – an unsolicited provocation about the technologically advanced city of the future – represented the City of Towers, then the officially commissioned 1940 Cape Town Foreshore Scheme represented the City Beautiful (Figure 4).[8] This project, described as a 'Gateway to South Africa', was grand and monumental in its vision. It proposed a broad seaside entrance and park-like promenade leading to a new civic center framed by an uninterrupted panorama of the mountain. Mountain, city, and sea is brought together in a dignified whole in a project that proposed a grand civility to compliment the imagined lives of its citizens. This project formed the basis for the final 1947 Foreshore Plan: a city beautiful of monumental buildings and grand boulevards.
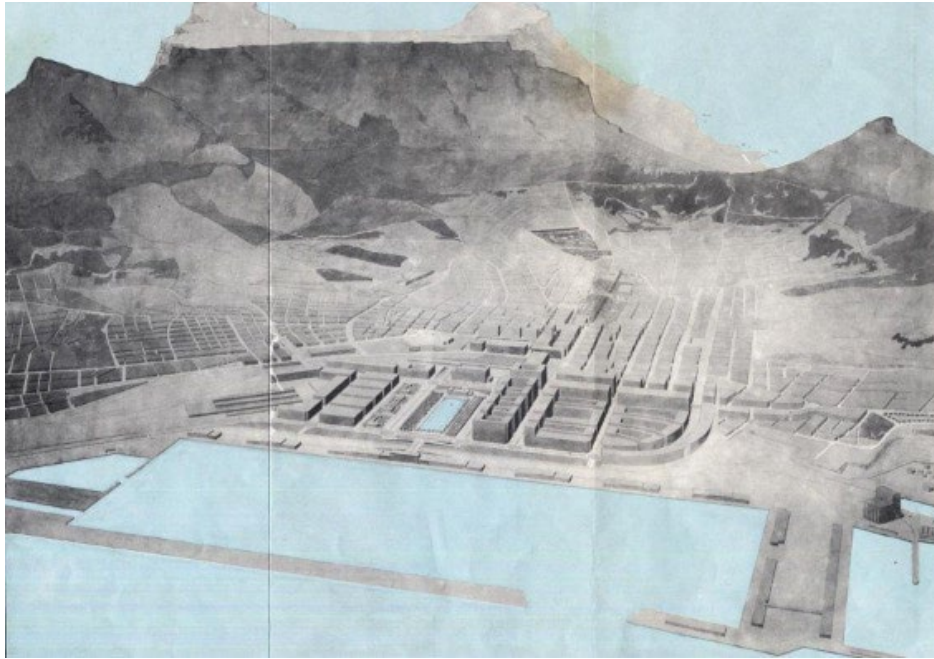
Figure 4. Cape Town Foreshore Scheme, 1940. Source: Thompson et al, 1940, pg. 22.

The 1947 Foreshore Plan was never fully implemented due to constant contestations between different authorities and stakeholders. By the 1950's the land had been parceled up and the 'boulevards' had been laid out. The city commenced selling off land to developers, but sales did not meet expectations. At the same time the city authorities made a distinct shift from any attempts at pursuing an idealized aesthetically pleasing city form, to a more practical, functional form.

By the 1960's development on the Foreshore had practically stalled and the optimism of what this place could contribute to the city had all but evaporated. The boulevards revealed themselves as inhospitable wide roads that offered little protection from howling winds tearing through them. Few buildings were built, and most sites served as parking lots topped by dust clouds. It turned out to be a particularly pedestrian unfriendly place.

In the 1970's harbor development completely severed the physical link between the city and the sea. Finally, in line with the city's more functional approach to problems, an elevated freeway was constructed across the Foreshore (Figure 5). Public outcry and lack of funding prevented completion of its connections to the historic city, and therefore parts of this freeway remain incomplete to this day.

In the sense that the architectural and urban theorist Ignasi Solà-Morales uses the term, the Foreshore can be characterised as a *terrain vague*: part of the city and yet disengaged from the city (Figure 6).[9] As a place it is most notable for its 'placelessness'. Solà-Morales describes a *terrain vague* as a space that is internal to the city and yet external to its everyday use, spatially and socially elusive and ambiguous. How to unlock the potential of this strategic part of the city has become a key challenge for the city authorities.

Figure 5. Foreshore highway under construction, 1970's. Source: http://digitalcollections.lib.uct.ac.za/collection/islandora-15123
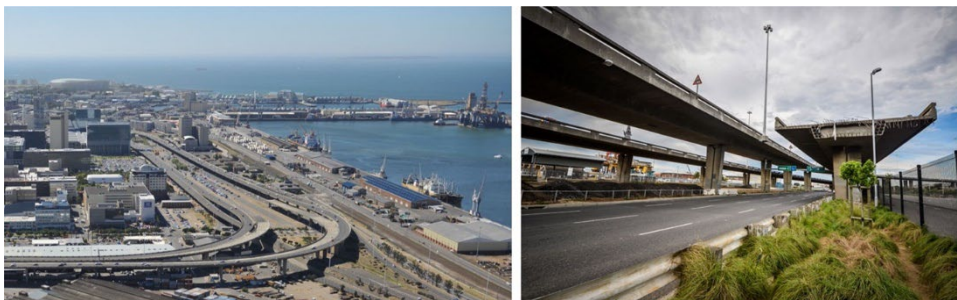
Figure 6. Cape Town's foreshore, present day. Source: http://www.capetownpartnership.co.za/wp-content/uploads/2014/05/Foreshore-featured-image.jpg http://d3d6208u46n5q9.cloudfront.net/warehouse_finder/uploads/news/2012/03/cape_town_foreshore.jpg

Cape Town Foreshore Freeway Precinct project

In July 2016 the City of Cape Town's Transport Authority launched a tender for proposals for the development of the Cape Town Foreshore Freeway Precinct.[10] The site offered was the derelict *terrain vague* below and in-between this highway. In the foreword of the brief, the (then) Mayor, Patricia de Lille, positioned the project in relation to the city's vision of transforming Cape Town into a highly inclusive society.

The project was conceived on the premise that the city would make the land available for development while the developer would carry the total development cost. The tender brief identified key aspects that needed to be considered as the transport issues (which included a response to the unfinished highways), a proposed programmatic mix that should push the boundaries of densification and intensification, and a proposal to addresses social and economic imbalances with specific reference to the inclusion of affordable housing. Bidders were encouraged to unleash their full creativity, being offered a blank canvas…

The six proposals varied greatly in their focus and approaches: some responded very directly to the challenge of imagining a programmatically enriched environment while some pursued iconic impact,

some took on the challenge of incorporating housing for all economic classes, while others paid scant attention to that requirement.

As a tender competition, access to the finer detail of the projects was, and remains, near impossible. The six proposals were exhibited, for one week in March 2017, for public viewing in the Civic Centre. The City collected public comments at that time, but what the public thought has never been made public…

In February 2018 the City's Bid Evaluation Committee announced Proposal F as the winning bid. This proposal had the lowest percentage of affordable housing units, it had the weakest programmatic mix of all the proposals, and it paid scant attention to environmental concerns.

But the biggest concern, picked up on by many who commentated on the project, was the fact that it perpetuated a crude apartheid spatiality with the affordable housing units situated below the highway while the luxury units towered above it (Figure 7).[11] A member of the Bid Evaluation Committee, citing this concern, resigned in protest. July 2018, the City of Cape Town cancelled the whole project citing 'vague evaluation criteria' as the reason.
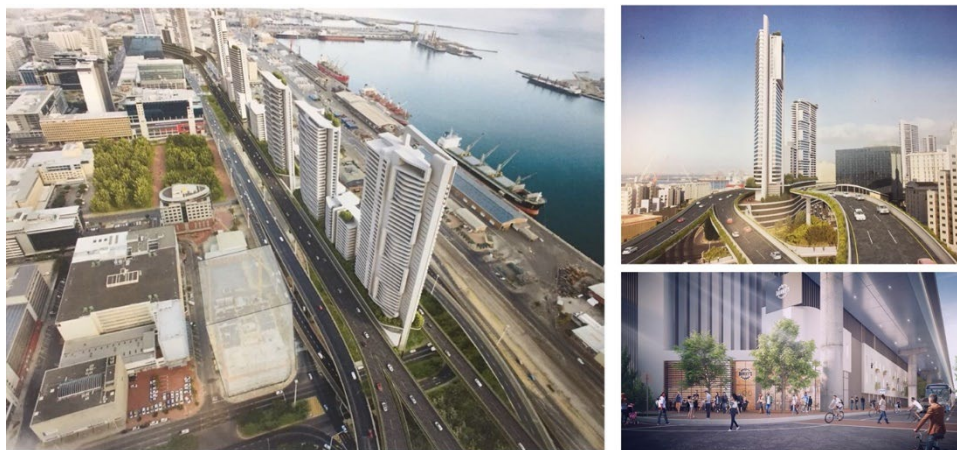
*Figure 7. Cape Town's Foreshore Freeway Precinct Proposal F. Source:
https://www.google.com/imgres?imgurl=https%3A%2F%2Fbusinesstech.co.za%2Fnews%2Fwp-content%2Fuploads%2F2018%2F02%2FForeshore-F-01.jpg
https://www.dailymaverick.co.za/article/2018-02-22-groundup-foreshore-development-violates-cape-towns-transport-policy*

Methodology for understanding the six bid projects

My interest focuses on the urban and architectural components of the bid projects, specifically how the public, social and housing is expressed spatially and formally. Access to finer grain information has been limited. The tender documents are not accessible to the public. I have relied on my own documentation of the project exhibition, interviews with architects of four of the six projects, and information obtained through desktop research. I have been able to gather enough information to be able to do a comparative analysis of key considerations, namely each project's response to the ground plane as an extension of the city floor, response to the unfinished highway, response to total housing units and proportion thereof ascribed to affordable housing, response to social program that support residential functions, response to public program that support broader cultural, economic, recreational and institutional programs, and, the presence of a social, economic and environmental sustainability within the proposals. It is not within the scope of this paper to include the full analysis. Rather, I will put forward an alternative lens, namely socially responsive architecture, against which to consider the projects.

SOCIALLY RESPONSIVE ARCHITECTURE

Socially responsive architecture is an approach that places a strong emphasis on the needs, values, and aspirations of the communities it serves. It recognizes that architecture is not just about creating aesthetically pleasing structures but also about addressing the social, cultural, and economic dynamics of the built environment.

At its core, socially responsive architecture aims to enhance the quality of life for individuals and communities by actively engaging with their unique context, history, and social fabric. It seeks to foster social equity, inclusivity, and sustainability through its design principles and strategies. Socially responsive architecture recognizes the role of architecture in fostering social interactions and connectivity. It acknowledges the importance of creating spaces that promote social cohesion, collaboration, and a sense of belonging.

In the context of Cape Town, a socially responsive architecture takes on a unique significance due to the city's diverse cultural fabric, historical context, and socio-economic challenges. Cape Town is known for its striking natural beauty, but it also faces deep-seated issues of inequality and spatial segregation. Socially responsive architecture in Cape Town should recognize the urgent need to address these issues and foster social equity. I suggest four categories that support a socially responsive architecture, namely:

Accessibility

Accessibility in architecture refers to the design and construction practices that ensure equal access and inclusion for people of all abilities. It focuses on creating environments that are usable, safe, and accommodating for everyone. Accessibility operates at both the bodily but also the social and economic levels. Accessibility also means that people of different backgrounds have equal access to resources and opportunities that the city offers.

Sociability

Sociability refers to the innate desire for human to be sociable, and the tendency to form communities and societies. Sociability is enacted in daily life through human relationships and interactions. Sociability can be architecturally conceived when projects promote how people can come together in socially fulfilling and culturally productive ways. Spaces and places that promote sociability fosters social connections.

Affordability

In architecture, affordability refers to the ability of individuals or communities to access and afford the construction, maintenance, and use of buildings or spaces. It encompasses the consideration of economic, social, and environmental factors to ensure that the built environment is accessible and sustainable for a wide range of people. Affordable architecture strives to provide solutions that are within reach of diverse socioeconomic backgrounds. It recognizes the social dimension of design. It emphasizes the creation of inclusive spaces that promote equity and social interaction, fostering a sense of community and well-being.

Sustainability

Sustainability in architecture refers to the design and construction practices that prioritize environmental responsibility, social well-being, and economic viability. Sustainable architecture strives to create harmonious, energy-efficient, and environmentally conscious buildings that positively impact the surrounding ecosystem and enhance the quality of life for occupants. By integrating

sustainable practices into architecture, we can work towards a more sustainable and resilient built environment.

Overall, these categories and components constitute an activated matrix wherein the good in one area contributes to the good in another, as illustrated in Figure 8. A socially responsive architecture encompasses a holistic approach that balances economic, social, and environmental considerations to create sustainable, inclusive, and accessible built environments for everyone.
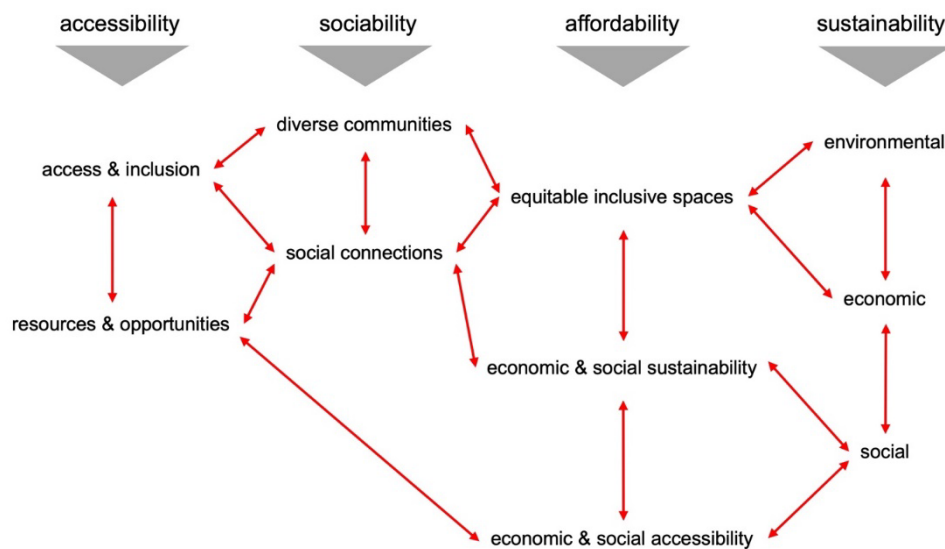
Figure 8. Social responsive architecture matrix. Source: author

Considering the six bid projects against the social responsive lens

When the six bids are evaluated against this matrix, the 'winning bid', proposal F, was the least socially responsive project (Figure 9). Two proposals stand out when measured against the socially responsive categories:

Proposal D proposed a rich mix of programmes, which held forth the opportunity to attract a diverse range of users. It offered a good range of social and cultural spaces that would serve to reconnect the city to the sea. It included an advanced strategy of energy resource sufficiency. The proposal included a high number of affordable housing units, but the actual cost of construction would probably reduce this number.

Proposal E stood out for its emphasis on reconnecting the city as a public space to the sea by taking all traffic down to street level and elevating an activated city space. It proposed the second highest number of affordable housing units (second only to Proposal A). The project was well conceived in the vibrant mix of cultural and public spaces that would serve as gaskets between fixed programmes. Sociability in terms of diverse spaces that would bring diverse people together, was well thought through.

Proposals D & E offered valuable architectural imaginings of a potential socially responsive architecture for Cape Town. Similarly, there is also much still to learn from the other proposals.
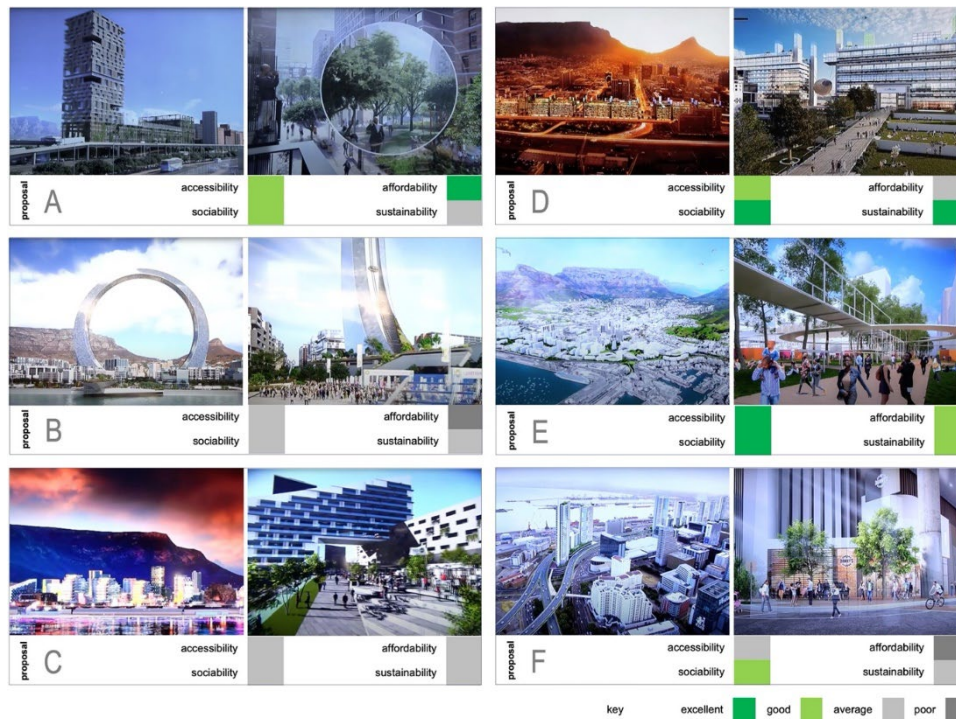
Figure 9. Cape Town's Foreshore Freeway Precinct Proposals A to F, measured against Socially Responsive Architectural categories. Source: Graphic compiled by author using screenshots of stills from set of videos from public exhibition, accessed on 9 June 2023 at https://www.youtube.com/results?search_query=foreshore+freeway+exhibition

CONCLUSION

The City of Cape Town Foreshore Freeway Project is easily written off as a failed project. The politics that have unfolded since the city scrapped the project included conflict within different municipal departments. This was evident from the start with the city's Urban Design department being conspicuously absent from the whole process. So internal to the city mechanisms, the project was not built on a strong enough foundation.

The project also failed in the outcome of the project selected. The tender evaluation process was not transparent, and, to this day, it is difficult to understand what values the city applied in its assessment, besides an evident economic matrix of profit. For example, how should citizens understand the city's position on inclusivity if the least inclusive project wins its favor?

However, I belief that a final, very important component of a socially responsive architecture is a socially responsive society where power and accountability are transparent. I argue that the City of Cape Town would do well to take a more socially responsive and transparent approach to this project. The tender projects should be made accessible to the public. I do not regard the City of Cape Town Foreshore Freeway Project as a failed project. Rather, it represents six well developed projects from which various disciplines can draw much learning to inform the ongoing effort towards a socially responsive architecture for Cape Town.

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TOWARDS AN INCLUSIVE URBAN REGENERATION: COMMUNITY ENGAGEMENT IN INDIA AND CHINA

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INTRODUCTION

Cities are dynamic systems that adapt and develop to meet changing social, economic, environmental, and political needs. However, urban complexities present multiple challenges in intervention and regeneration projects, changing the scope for long-term and strategic responses.[1] In societies with democracy pursuit, community engagement in urban design and planning has been critical to achieving more inclusive decision-making processes and outcomes. Engagement experiences derived from bottom-up approaches also showcase the values of community engagement in various types of urban regeneration and, ultimately, contribute to urban sustainable regeneration. However, community engagement has been given little attention under the top-down governing structures in the Global South cities. In Asia, China and India are the most populated countries and are in their fierce urbanization stage. These two countries thus provide multiple case studies for observing the process and assessing the effectiveness of community engagement under top-down governance structures.

Urban Regeneration and Community Engagement

The term 'urban regeneration' refers to the "comprehensive and integrated vision and action which leads to the resolution of urban problems, and which seeks to bring about a lasting improvement in the economic, physical, social and environmental condition of an area that has been subject to change."[2] The World Bank specifies four phases for any urban regeneration project. The first three phases range from scoping, envisioning, and implementation planning to social and financial partnership (including private sector partnerships and incentivization). The last phase emphasizes project coordination, risk management, and stakeholder management.[3]

These phases of urban regeneration require analysis and consideration of not only economic conditions and financial availabilities for interventions, and environmental conditions (including immediate and long-term resource impacts that would need immediate and long-term measures), but also the context-based social and cultural nuances to provide sustainable solutions.[4] However, urban regeneration projects often cause various social problems in practice, such as social injustice and inequality, due to a lack of understanding and recognition of the stakeholder.[5] This leads to the pressing need to understand and engage with local stakeholders and communities in all project phases to facilitate decision-making and implementation of urban regeneration projects.

Community engagement refers to mutual communication and deliberation between the government and citizens. It allows citizens and government to participate mutually in all aspects of the urban regeneration process. It is key to an inclusive process that enhances the impact of sustainable urban

regeneration.[6] Ideally, through an exchange of opinions, conflicts are resolved through various arrangements, structures, and processes of citizen-government interaction.[7] Western countries have had more experience in the policy and practice of community engagement related to urban regeneration.[8] Countries such as China and India face significant challenges in better incorporating the community in practice. Whether or not engagement mechanisms are currently available (such as surveys, workshops, community meetings, voluntary maintenance or monitoring programs, and many others that have been administrated in these countries) needs further investigation. More specifically, the countries have not established effective community engagement programs and strategies, impeding the social integrity and public well-being of regeneration outcomes, threatening urban regeneration's overall sustainability. To mitigate these challenges, there is a need to evaluate community engagement approaches, challenges and potential for meaningful community engagement.[9]

Methods

In this paper, we seek to understand 1) what types of urban regeneration projects apply to community engagement in China and India and 2) what are the engagement mechanisms in community engagement. 3) To what extent have communities been involved in urban regeneration projects? The case studies are grouped into three types: historic regeneration, environmental-oriented regeneration, and non-profit organization-led regeneration projects. The following sections review multiple case studies to assess India and China's community engagement approaches, processes, and critical challenges. We conclude the paper by providing recommendations for enhancing community engagement in urban regeneration projects.

Historic regeneration-oriented projects

In India, an emphasis has been on the redevelopment and regeneration of old city areas and housing developed immediately post-independence. Heritage and tourism sites have also served as a means of regeneration of old city areas. In such cases, the process of urban regeneration includes inducing life to decaying assets, such as built tangible heritage and cultural resources, while also developing the area's future potential.[10] Engagement with the local community in urban renewal projects enables the community to lead maintenance within the settlement.

One example of the Nizamuddin Urban Renewal Initiative in Delhi is a conservation-led development model in dense city areas. The initiative comprised conserving and restoring a tomb complex garden, landscaping efforts to develop a city park, and a dual-focused initiative of conservation of built heritage and community socio-economic empowerment. The latter ensured community participation and engagement through surveys, interviews with community elders, and stakeholder group discussions.[11] The Hazrat Nizamuddin Basti project also involved the local community in the daily management and maintenance of community facilities, capacity-building training, and skill training programs. Furthermore, the strategies adopted to engage the local community to resolve sanitation-based issues and instill behavioral changes included creative methods such as rallies, audio broadcasts, and cultural activities such as street plays and puppet shows.[12] The identification of stakeholders and continuous engagement with the local community to understand their concerns and instill behavioral changes toward the long-term improvement of sanitary conditions in the dense settlement make the project approach community-centric. Figure 1 below shows a model of a community toilet building developed as a participatory design component of the project.

Figure 1. A model of a community toilet developed as a participatory design component of the Hazrat Nizamuddin Basti project. Image source: (INTACH, 2015)

Local community consultation has been integral to India's old city regeneration and development efforts in recent years. For instance, under the "Jawaharlal Nehru National Urban Renewal Mission", local community, and stakeholder consultations were a key component of the design and implementation of the pilot demonstration program on "Inclusive Heritage-based City Development." The pilot programs were conducted for the old city areas of Varanasi, Pushkar, Ajmer, and Hyderabad. [13] Community engagement in city development and planning efforts allows local communities to gain a sense of responsibility towards the city areas and highlight their needs that would otherwise remain ununderstood in a top-down planning process. In the case of Ajmer and Varanasi, not only were the residents consulted in the design and implementation process, but they were also involved in mapping tangible and intangible heritage. [14] Another similar example of community participation in mapping urban heritage is the West Midnapore district of West Bengal. Public participation not only assists the mapping process but also helps create awareness and a sense of belonging among the local communities. [15]

The regeneration approach for a historic town shows how both tangible and intangible heritage has the potential to serve as an asset in city planning and development efforts. [16] In the historic town of Pauni in India, the regeneration approach builds on tourism-based development undertaken with efforts by both the state and non-governmental organizations. The project was based on integrated conservation by promoting traditional economic skills and adaptive reuse of heritage structures through community participation and engagements with various stakeholders and organizations. [17] Hence, community engagement and participation, as discussed in the examples above, allow for collaborative efforts and support from the residents and stakeholders in the implementation and management stages of the project.

In China, since the 1980s, projects began with preserving, restoring, and repairing built heritage and gradually expanded to historic districts and city-scale preservation. [18] Recognizing the importance of heritage preservation for local identity and tourist economy, city master planning often pre-identifies the historical areas that need to be preserved. For instance, heritage conservation in Qingdao City Plan (2011–2020) identified thirteen historic areas. Community surveys, forums, and public meetings were conducted in heritage conservation in order to explore the immediate needs of local residents in

scoping and envisioning phases, whereas involvements in other phases rarely happened. Zang and Van Gorp (2018) also found that residents did not show a strong interest in participating in preservation projects and tended to put their priorities over the preservation goals.[19]

Interim Administrative Measures for the Recognition of Cultural Relics explicitly states that citizens, legal persons, or organizations could apply for designation and listing of immovable cultural relics as an effort of participating in historical preservation.[20] However, few applications were submitted by residents in Qingdao city. This could imply a low interest in helping the city's heritage preservation programs.[21] In early practices of old community regeneration projects in Beijing, researchers observed undemocratic decision-making.[22] They reasoned that compensation plans, regulations, and regeneration proposals were never formally made available to all residents. A clear priority order: economic growth, physical and environmental improvement of the area, and social requirements of the residents were demonstrated in these projects.

Environmental-oriented urban regeneration projects

Community engagement or participation has long been advocated in environmental policy to help address environmental problems. Previous research shows that community engagement can lead to better environmental awareness and pro-environmental behaviors and, therefore, better environmental protection outcomes.[23] In China and India, the convergence of water environment management and urban regeneration has necessitated involving local communities and stakeholders in decision-making. This, for example, includes China's "Sponge City Development,," which encourages the use of green stormwater infrastructure in urban old neighborhood renovations to reduce stormwater impact and promote people's quality of life.[24] In 2015, Zhenjiang Government initiated the "Sponge Plus" program to integrate stormwater reduction goals into housing and landscape improvement goals to revitalize the overall living environment of deprived urban neighborhoods. Community engagement was a crucial component of this program, where measures such as surveys, community meetings, workshops, and pilot project demonstrations were used to engage with local communities.[25] Specifically, monthly community meetings were held in the Sanmao Gong neighborhood retrofitting program to discuss sanitary, safety, and landscape quality issues. An online forum was also established for residents to state their opinions and concern about the retrofitting process and outcomes.

Additionally, local communities can register for a free rain barrel program to help address stormwater programs in their neighborhoods. The process was believed to contribute to understanding preferences related to housing and landscape improvement, knowledge about specific stormwater and flooding locations, and long-term stormwater stewardship at the local level. However, researchers found limited resident engagement, with only 5.3 percent of the residents indicating more active participation in design and planning workshops, implementation, and maintenance training programs.[26] There was also a challenge related to involving vulnerable groups in the decision-making process since old urban neighborhoods usually accommodate more aging and young populations. Hence, it can be argued that community engagement has kept affected communities well-informed about neighborhood transformation. However, meaningful participation in affecting the decision-making of the transformation is still scarce.

In India, the Sabarmati Riverfront Development aimed to reclaim the riverbank for the public as well as address issues of environment and ecology that included public engagement during the implementation stages to change public perception of the project.[27] The large-scale project aimed to revitalize the riverfront by removing informal settlements and making the space accessible to the public.[28] The project included rehabilitation of informal settlement inhabitants, riverfront development as a continuous public promenade on the banks for public access, and creating of public

embankments to reduce the risk of flooding in low-lying neighborhoods, as well as measures to stop sewage flow into the river.[29] Figure 2 below shows the river promenade, which is a continuous pedestrian walkway of approximately 11.5km in length.

Figure 2. The River Promenade, Sabarmati riverfront development project. Image retrieved on November 6, 2022, from https://sabarmatiriverfront.com/river-promenade/

The project planning and implementation of the Sabarmati Riverfront Development included design workshops with architects and planners in Ahmedabad and focus group discussions on each precinct to identify issues and possibilities for development.[30] The community engagement with the informal settlement households during the project included community representative discussions during the project's feasibility study.[31] However, the project faced extensive criticism from the relocated inhabitants and the public regarding the financial aspects of the project.[32] To change public perception, the project team engaged non-governmental organizations to improve the satisfaction of the relocated household. Furthermore, the project team also conducted informal conversations with the public across the city to clarify public concerns.[33] However, the lack of public consultation and engagement from the project's onset resulted in delays and public distrust of the planning process.[34]

Non-profit organization-led projects

In the Sabarmati Riverfront Development project discussed above, non-governmental organizations were involved during the feasibility study and later the project implementation phases. However, although government-led urban regeneration takes a large portion, urban regeneration efforts can also be conducted by involving local communities or by local communities leading directly. An example of a Non-government-led, Community-driven Heritage Engagement Model is that of a street art festival organized in Shahpur Jat, an urban village in South Delhi, in 2014. A non-profit organization called "St+Art India" collaborated with the local community to address the lack of street signage in the area while also instilling a sense of community and ownership through street art.[35] Figure 3 below shows artists working on their street art pieces as a part of the festival. This collaboration between the non-profit organization, local community, and artists aimed at enhancing the otherwise neglected public spaces.[36]

Figure 3. Artists working on their street art as a part of the festival. Photographer: Akshat Nauriyal, Image retrieved from the St+art India collection on November 6, 2022, from https://artsandculture.google.com/story/-wVxgVVohgYA8A

An exemplary case in China is Shanghai-based "Clover Nature School," a non-profit organization focusing on grassroots community engagement and environmental education in city regeneration.[37] For example, the project "KIC Community Garden" has integrated an urban farm, ecological learning lab, seed library, and community event room into a vacant lot surrounded by residential communities. Community members can register for a lot to grow their own vegetables, flowers, and fruits as a way of increasing food sources and learning and engaging with nature (Fig. 4). Local professionals also provided learning opportunities for sustainable farming and gardening by conducting training programs and workshops. The KIC community garden has evolved into a public community garden in co-governance by Clover Nature School, local government, private sectors, and community members.

Figure 4. The first photo shows the KIC Community Garden; The second photo shows a child watering the vegetables. Photo retrieved on November 5, 2022, from https://finance.sina.com.cn/wm/2021-06-11/doc-ikqcfnca0513491.shtml

CODE	Projects	Phase 1:Project scoping	Phase 2: Project envisioning/ planning	Phase 3 : Planning + implementation	Phase 4 : evaluation/ monitoring
A	Nizamuddin Urban Renewal Initiative in Delhi, India	●	●	●	●
B	Shanghai KIC Community Garden	●	●	●	●
C	Zhenjiang "Sponge Plus" program	●	●		●
D	Qingdao Historic Area Preservation Plan	●	●		
E	Enning Road preservation project in Guangzhou	●			
F	Sabarmati Riverfront Development project		●	●	
G	Beijing Old Community Regeneration Project	●			

Table 1. Community engagement in the various phases of urban projects
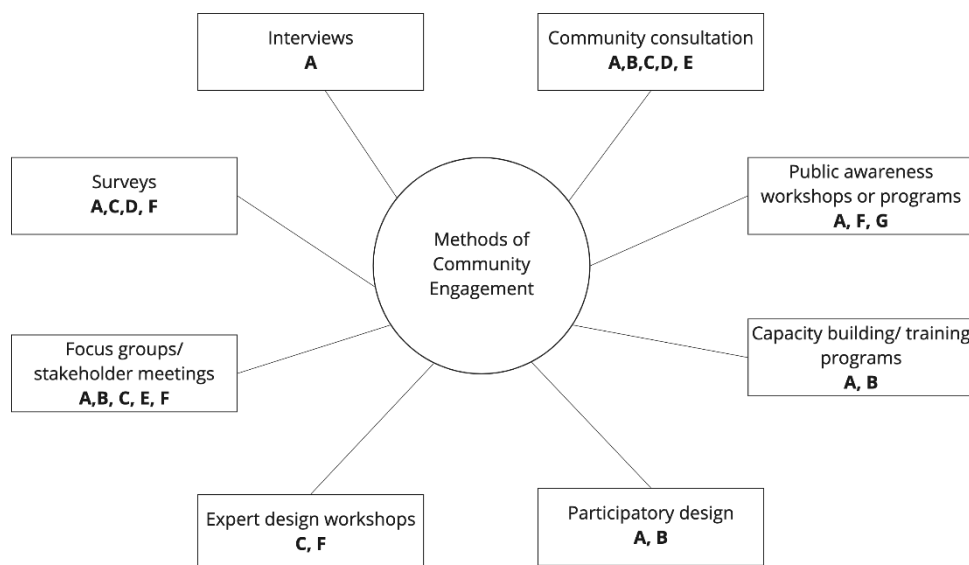
Figure 5. The figure shows common community engagement mechanisms incorporated in the various projects referred to in Table 1

Based on the studied projects, we further summarized the specific engagement mechanisms and in which stage people are involved in. Table 1 shows the various phases in which community engagement was integrated into the selected urban projects in India and China. Figure 5 shows the various community engagement methods adopted in these projects. It reveals that most of the projects in China did engage with communities at an early stage during the scoping and envisioning. In contrast, people have not been actively involved in the implementation and post-development phases. Similarly, regeneration projects that prioritize historic preservation rarely include local communities as key stakeholders in early practice in China. While the partnership of government and private capital remains the major force in the historic preservation process, there should be a role for local communities to play in showing their expectations and values towards how the past of the city and their living environment should be preserved. In contrast, the projects in India engaged communities during the implementation phase of the urban projects. In examples discussed from India, community involvement in the documentation of heritage and in the implementation and management stages of projects serves as a positive step towards including local communities in urban development and regeneration projects.

CONCLUSION

By 2030, it is estimated that 80 percent of the population will live in urban areas.[38] How to make cities more sustainable in response to population growth and climate change has troubled policymakers, practitioners, and scientists. Urban regeneration as a design and planning strategy is based on the context, planning vision, and the stakeholders' needs. Community engagement has been considered an effective strategy for sustainable urban regeneration in Western societies. However, whether or not community engagement is effective under the top-down governing structure remains unknown. This paper tackles this important knowledge gap by reviewing community engagement in urban regeneration literature and practices in China and India.

The results showed that community engagement has been included in the planning and implementing phases under different initiatives, and eight types of engaging methods (Fig. 5) were found in the studied projects. However, how they affect the community's engagement experiences and final decisions within the regeneration projects remains an open question in the cities of China and India. Therefore, we recommend that there needs to be a formal evaluation of community engagement effectiveness in those incoming regeneration plans to enhance regeneration outcomes. We also found that community engagement outcomes also have room for improvement. For example, some studies reported less satisfactory public engagement rates and an impact on neighborhood transformation in China.[39] Meanwhile, for regeneration projects that claim meaningful community involvement, critics are not doubtful whether community feedback is genuinely considered in the decision-making process of urban regeneration.

In conclusion, community engagement in urban regeneration remains a nascent stage with slight variations, where most engagement plans are set out to satisfy legal requirements in China and India. Challenges still exist for engagement plans that are implemented, and the effectiveness of these plans needs further investigation. Moving forward, we recommend that, firstly, it is crucial not to consult local communities as a formality but rather to engage them in all steps of the regeneration process at the local scale. The goals of engaging with the community should go beyond only satisfying legal requirements. Second, a co-benefit approach can be adopted, with careful assessment of environmental benefits and community benefits. Third, local governments should identify best practices for community engagement so that engagement programs can be more successful in terms of the amount and diversity of stakeholders.

NOTES

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ADAPTABLE BUILDINGS AS MULTILAYERED MEMBRANES IN POROUS CITIES: EMPIRICAL STUDY OF TWO CASES IN THE NETHERLANDS

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INTRODUCTION

Sustainability & circularity

The harmful effects of the construction sector on our environment pose increasing pressure on developing more sustainable construction practices. The built environment represents 37% of global energy-related CO2 emissions with 10% coming from the construction process. Furthermore, efforts on the decarbonization of the construction industry are stalling and need to be at least tripled to reach decarbonization goals by 2050.[1] One path to tackling this issue is through the development of circular construction practices. In academic literature, three levels of circularity in the built environment are defined. Today, research primarily concentrates on materials [2] and component-level re-use.[3] A level that remains understudied is the reuse of existing building structures. Nonetheless, this level can be considered the most desirable because it leaves large portions of embodied carbon untouched and minimizes the effort, transport, and reprocessing needed for necessary interventions. Beyond improving the energy efficiency and material ecology of a building, the continuous reuse and repurposing of the city fabric is also beneficial on the urban level as adaptive reuse contributes to the orientation within the city and, more generally, as an identity factor of neighborhoods.[4]

Adaptability

Adaptability in architecture has been studied broadly over the last 60 years, both in academic research and architectural practice. In the 1960s and 1970s early studies by the British scholar Francis Duffy and Dutch architect John Habraken described how societal and economic changes led to changes in our working and living environments. In symbiosis, practicing architects such as Herman Herzberger and bOb Van Reeth developed architectural concepts of adaptable building structures. In essence, these projects stem from the hypothesis that the building structure should be conceived as a permanent extension of its site rather than as a direct translation of a specific program.[5] Based on these 20th-century studies, theoretical models have been developed in academic research. Most influential, in 1994 Steward Brand introduced his concept of 'shearing layers'. Countering the modernist view of the building as a static entity, Brand proposed that buildings should be seen as a set of shearing layers, each having its own expected lifetime and adaptations.[6] These theoretical models remain largely influential today as a basis for architectural practice and state-of-the-art research.[7]

Towards a contextual approach

Recently, empirical research has highlighted shortcomings in these models.[8] One such shortcoming is that current adaptability models in architecture tend to describe the building as an isolated object, neglecting the building's vital relationship with its transforming urban setting. Limiting processes of change to the building level, these models nearly always lead to technical solutions of adaptability. In contrast, studies from real estate management show that major decisions on building conversions are driven primarily by the building's cultural and historical value in the city, rather than their technical characteristics.[9] On the urban level, sociologist Richard Sennet even describes adaptable buildings as the porous fabric of our ever-changing cities. [10] Although architectural adaptability models acknowledge this influence on a generic level, the relationship between internal architectural interventions and the building's transformed urban setting is largely understudied.

Aim

This paper studies the reciprocal relationship between internal changes to converted buildings and their transformed neighborhoods. Based on the empirical study of two cases in The Netherlands, it offers evidence-based findings and reflects on common theoretical assumptions. The study focuses on the building's most permanent layers, i.e., its load-bearing structure and primary circulation, as their essential character defines the physical and functional layout of the building over its lifetime. Both aspects are identified as key characteristics influencing the flexibility and polyvalence of the building.[11]

METHODOLOGY: EMPIRICAL MAPPING

The case study combines quantitative and qualitative research methods. In the first part of the study, historic planning material is gathered from both the original and converted conditions. Changes to the building are mapped, using a previously developed mapping technique.[12]

After the preliminary analysis of the planning material, semi-structured interviews are conducted with the project architects of both cases to study the decision-making process behind the observed changes. The interviewees are selected based on their leading role in the design process of the cases as well as their extensive general experience with conversion projects. Both architects are founding partners of mid-sized offices with a positive attitude toward conversion projects, with more than 25 years of experience. In the first part of the interview, the design process of the case is systematically discussed. The second part focuses on the interviewees' general experience with reuse. Both parts follow the same structure and cover the same topics, allowing us to identify case-specific concerns from general issues. The interviews are processed anonymously and analyzed qualitatively following the QUAGOL guidelines developed by KU Leuven.[13]

CASE STUDIES

Two cases are selected to discuss the relationship between internal changes to converted buildings and their transformed neighborhoods. The cases are selected to represent contemporary construction methods, building scales, and urban settings. Both cases are concrete skeleton constructions, originally constructed as industrial buildings in the first half of the 20th century, and have been recently converted to mixed-use buildings. Nonetheless, the observed changes to the buildings are different, as are the physical and legislative contexts in which their neighborhood was transformed.

The following discussion is meant to reveal the reciprocal relationship between the internal changes to the converted buildings and their direct transformed urban setting. The discussion is structured in line with the greater research, covering first the changing use of the building, then the changes on the physical level (structure and building envelope), and lastly the changes on the functional level

(accesses and circulation). On each level, the discussion focuses on the adaptations in relation to their direct urban context.

Pakhuismeesteren (PM)

Designed as a warehouse, Pakhuismeesteren was constructed in 1941 in the harbor of Rotterdam, The Netherlands (fig.1a). The building was designed highly rational in its structure, layout, and façade. The building measures 90 by 50 m and has three floors. Its concrete skeleton structure has a span of 5,5 by 5,5 m, with a generous average room height of 4,5 m. Narrow corridors enclosed by load-bearing walls divided the warehouse into eight storage units. At both ends of the main corridor, the building had a compact staircase with a direct entrance to the street.

At the turn of the century, most industrial activities had moved to newer parts of the harbor, and the neighborhood was redeveloped offering a mix of offices, housing, and retail. As no buildings had been protected, most warehouses were replaced with high-rise constructions. Only after construction works started did the city council realize that the neighborhood would lose its original character and historical meaning. Five buildings were kept and converted. In 2017, Pakhuismeesteren was converted by Belgian architectural firm AWG Architecten into a hybrid building. During the construction process the building got listed.[14]

Figure 1. Diagram showing the original and transformed urban setting of Pakhuismeesteren.

Changing use

Today, the hybrid building combines a hotel, short-stay housing, a restaurant, and a food market. The detailed program was developed by the private client, yet it is a direct response to newly observed needs in the transformed neighborhood. More interestingly for this study, the architects discuss how the internal distribution of the new program in the building relates directly to the building's transformed urban setting. Most new buildings had closed plinths, without any public activities. As a response, the architects positioned the restaurant and food market strategically in the southwest corner of the building, a central location in the neighborhood (fig.1b). The internal distribution of the program is thus used on an urban level to respond to the changed urban context.

Physical change: structure & envelope

On the structural level, drastic changes had to be made to fit the new program in the existing building. During the interview, the architect stressed that the building was kept for its cultural meaning in the city, not its internal characteristics. A large central atrium was created to provide sufficient daylight in

the deep building. To ensure the project's economic feasibility, two floors were added on top of the existing structure. At first sight, no direct relationship is observed between these structural changes and the transformed physical context of the building.

The building envelope is kept largely intact, serving as a permanent character to retain the building's historic meaning in the city. In the plinth of the building new grand entrances and large windows are made, functionally and visually connecting the new use of the building with its context (fig.1b). On the floors above, new windows provide daylight in the architectural spaces.

Functional change: circulation & access

On the functional level, both the accesses and circulation of the building drastically changed. New grand entrances are aligned directly with the new square at the southwest of the building, and with the new main street running along the west side of the building, giving the previously uniform building a clear orientation. Responding to both the urban level and building level, the new entrances align the internal circulation and the new functional layout of the neighborhood. Connected to this, the internal circulation of the building changed. A new radiating corridor around the central atrium provides all the spaces with clear access. New circulation cores with staircases and elevators are positioned next to the new main entrances. The structural changes stemming from the new functional layout are thus indirectly informed by the building's transformed urban setting (fig.2).

01 Transformed main street
02 New public square
03 Main entrance at square side
04 New circulation core, directly positioned at new entrances
05 Direct entrances to retail spaces on groundfloor
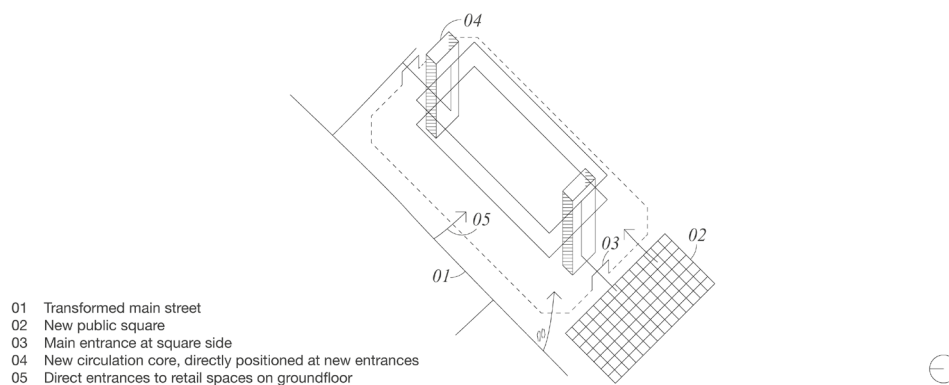
Figure 2. Diagram showing the new accesses and circulation of Pakhuismeesteren in relation to its direct urban context.

Gebouw Anton (GA)

Constructed in 1927, Gebouw Anton was designed as a factory hall for Philips by architect Broekert and engineer Bouten (fig.3a). The building is situated in Strijp S, originally an industrial neighborhood in the east of Eindhoven. The 7-story building measures 80 by 24 m. It has a generous ceiling height of 4,6 m and a structural grid of 7,5 by 7,5 m. At the backside, three structural cores provided simple access to the different floors. Connected to these cores, the building had three functional entrances. All floors had large windows, providing sufficient daylight for the production.

As production moved out in the 1990s, Strijp S became vacant. At the beginning of the 2000s, the entire site was redeveloped into a new mixed-use neighborhood combining living, working, retail, and cultural functions. The private investor kept approximately half of the original buildings, others were demolished and replaced with denser new constructions. The exterior of the remaining buildings received protection, amongst them Gebouw Anton.
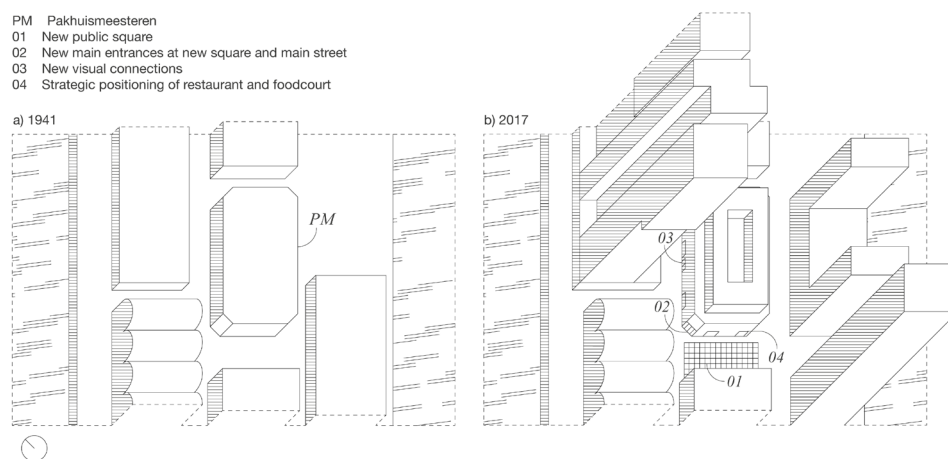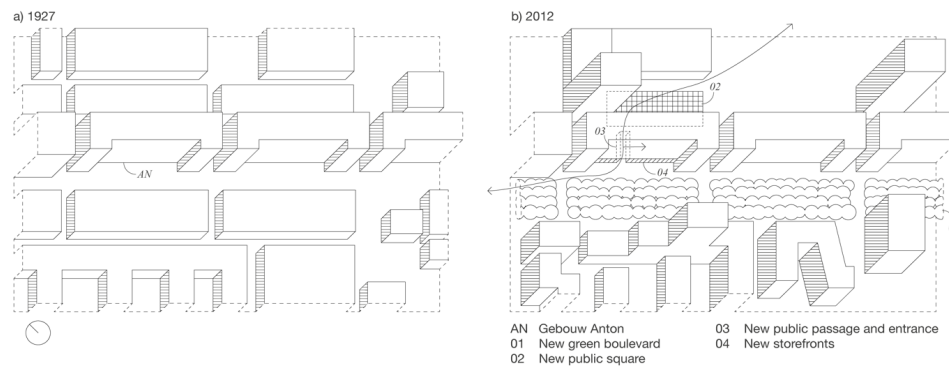
Figure 3. Diagram showing the original and transformed urban setting of Gebouw Anton.

Changing use

Today, the building combines housing, offices, and retail. The detailed program was defined by the client yet it's a direct response to the new needs of the transformed neighborhood. The architect mentions that the brief was less strict than new construction, hence the building characteristics and the role of legislation are harder to predict in conversion projects.

Physical change: structure & envelope

On the physical level, the most significant changes have been made on the structural level. Existing floor slabs have been opened up to place large new staircases. Additionally, the structure was reinforced to allow for two more floor levels to be added in the future. A thorough analysis of the internal changes has been published earlier by the authors.[15] At first sight, there is no obvious relationship between these structural changes and the buildings' transformed context.

In the building envelope, the most significant changes are made to the plinth of the building. Entrances are made to the new retail spaces, increasing the permeability on the ground floor (fig.3b). On the floors above, the façade was carefully renovated without any major architectural changes, as large windows provided sufficient daylight for all new functions.

Functional change: circulation & access

On the functional level, however, the most drastic changes are observed. Following the urban masterplan, a new public passage on the ground floor is created, connecting the neighborhoods on both sides of the building. The architects connected the new main entrance to this passage to strengthen their urban meaning with the entrance functioning as the interface between the urban scale and the building scale, coordinating the circulation inside and outside of the building. In addition, direct entrances give access to the retail spaces on the ground floor (fig.3b).

Connected to the new main entrance, the new vertical circulation (new staircases and elevators) is established. Radiating corridors with different staircases provide redundancy of circulation. As the position of the new circulation is directly defined by the location of the new entrance, the new internal circulation, and structural changes stemming from this, are indirectly influenced by the building's transformed urban setting (fig.4).

01 New green boulevard
02 New public square
03 New public passage with main entrance
04 New vertrical circulation with grand stairs and voids
05 Direct entrances to retail spaces on groundfloor
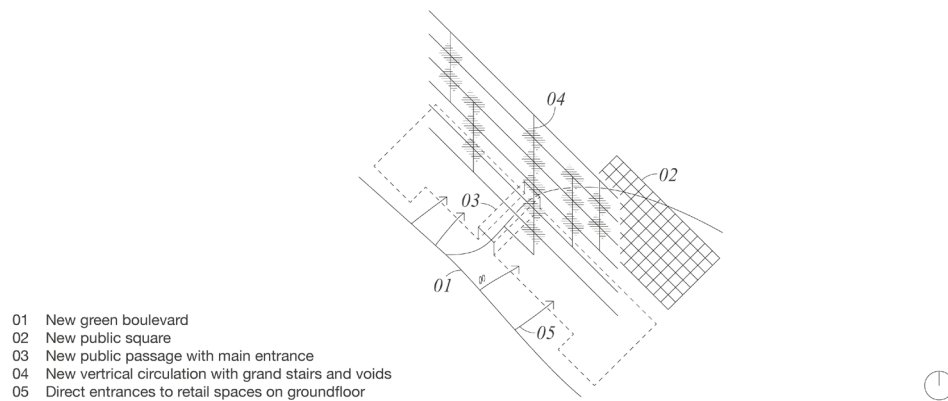
Figure 4. Diagram showing the new accesses and circulation of Gebouw Anton in relation to its direct urban context.

DISCUSSION

In both cases, the decision to convert the building was essentially made on an urban level. Both buildings were retained for their historic value and cultural meaning in the city, rather than their internal spatial or structural qualities, reinforcing findings from urban studies.[16] As argued, this is not commonly reflected in adaptability models today, which conceptualize adaptable architecture as new buildings, disregarding the complexity of existing buildings and the interconnected relation with their urban context.

Changing use

Firstly, in both cases the transformed urban setting plays a key role in defining the buildings new use, complementing a lack of functions observed in the neighborhood. Nonetheless, the detailed program is defined by the client. Secondly, and more interesting for this study, both cases reveal a direct relationship between the building's transformed urban setting and the internal distribution of the program. Both architects indicate that during the early design phase the renewed urban context arguably outweighs the building's internal structural characteristics. This strong influence of the urban context on the programmatic layout of the building is not commonly reflected in current literature.

Physical level

On the level of the building structure, no direct relationship is observed between the internal physical changes to the building and the transformed neighborhoods. Structural changes seem to respond more to the internal characteristics of the building (e.g., lack of daylight), the new program (e.g., need for double height spaces), or the new internal circulation (e.g., openings for new stairwells) than to its urban context. Current literature focuses on these physical changes. Conversely, the cases show that most structural changes are an effect of the changing functional layout of the building, i.e. the distribution of the program and internal circulation. The findings also reveal that these aspects are directly influenced by the building's transformed neighborhood. As a result, the location of the structural changes is indirectly induced by the changed urban context. When discussing the adaptability of buildings, a deeper understanding of the influence of the building's functional layout, its interdependency and changeability is needed.

The changes to the building envelope show a direct and strong relationship with the transformed urban setting. On this level, most changes are observed in the plinth of the building. Here, the façade functions as a membrane organizing the complex relationship between the building's internal functional layout and its urban context. Both buildings had a rather closed plinth, due to their

industrial typology. New interventions significantly increased the permeability of the plinth, establishing new functional and visual connections with its neighborhood. The established openings, particularly the grand entrances, are aligned with the higher-order axes from the masterplans. On the floors above, the observed interventions solely relate to the introduction of daylight in architectural spaces. Both architects argue that when enough daylight is provided, the façade on the floors above can have a rather permanent character, contributing to the building's continued character in the city. These findings are in line with current literature and general architectural knowledge.

Functional level

On the functional level, we observe the most direct relationship between internal changes to the building and its transformed neighborhood. In both cases, new entrances are added. Both architects argue that the positioning of the new entrances is almost exclusively informed by the new urban setting.

Internally, this strongly influences the positioning of the new vertical circulation within the building. Both architects argue that during the early design stage of the new functional layout, the urban setting outweighs the structural properties of the building. Aspects such as the dimensions of floorplates, location of beams, and load-bearing capacities are perceived as technical boundary conditions that can later be checked and solved with the engineer. It must be noted that this is likely case-specific, as both cases have a generic structure without significant internal structural differences. Nonetheless, these findings contradict the focus of current literature, where the focus is put on the influence of the structural properties of the building, and the influence of the urban setting is either not represented or minimalized.

	changes to	influence of urban setting
use	program definition	x
	program distribution	x
physical	building structure	(x)
	building envelope	x
functional	accesses	x
	circulation	(x)
	x = reciprocal	*(x) = indirect*

Table 1. Relationship between internal changes to the buildings and their transformed neighborhoods.

Interconnected layers

During the design process, the described layers are strongly interconnected. For example, a new entrance implicates physical changes to the building envelope, yet it also informs the positioning of the new vertical circulation, which on the physical level has a structural implication, defining where materials will be extracted and added, in turn defining the spatial layout of the building and possible uses of the spaces. Similarly, the cases show that the building and its urban context are not two separate entities but are closely intertwined on all many layers, continuously responding to each other.

CONCLUSION AND FURTHER RESEARCH

On all levels, the cases reveal a strong relationship between the internal changes to the building and their transformed neighborhoods, far greater than current adaptability models acknowledge. On the functional level, we observe a direct and strong relationship between the transformed urban setting

and the internal distribution of the program, circulation, and accesses. On the structural level, the relationship seems to be rather secondary, as most structural changes are a direct response to the changing functional layout of the building. Both architects identify the transformed urban context as a key influence on the internal changes in the buildings. During the early design stage, its influence arguably even outweighs that of the structural properties of the building. In current adaptability models, the influence of the urban setting is either not represented or minimalized. As this study is limited to two cases, its significance is limited yet it clearly indicates the gap in the broader understanding of changing processes. Although the findings reveal clear hypotheses, an empirical analysis of a larger database of conversion projects is needed. A deeper understanding of this dynamic is imperative when anticipating future changes to building structures or designing new adaptable buildings.

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INCREASING WALKABILITY BY OPENING PASSAGES THROUGH THE BLOCKS: A COMPARATIVE STUDY BETWEEN LISBON AND MANHATTAN

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INTRODUCTION

What makes a city livable? The walk trip is one of the factors that contribute to a livable city. In fact, walking has been associated with numerous social, health, and economic benefits, as it is the most basic means for people to get around, integrate and experience urban space, and engages in health-enhancing physical activity.[1] People are increasingly concerned about health and environment thus the walkability of a city really matters.

The mobility in the cities needs to be rethought so that Sustainable Development Goals[2] like Good Health and Well-Being (SDG3), Climate Action (SDG13) and Sustainable Cities and Communities (SDG11) are encountered.

It is urged to take actions so that walkability increases in the cities and people are stimulated to walk instead of using the car, this means to implement 10-20 minutes walking distances.

Opening passages through the existing blocks will increase the pedestrians' trips and consequently people will walk more in their daily-life bases, and this would lead to a significant reduction of the use of cars, buses, and taxis contributing to a better environment and a better health.

Commonly, the distance between two places in a city is known as the Manhattan distance, which can have different routes but always with the same length (yellow and green lines in Figure 1). The opening of passages through the blocks brings the Manhattan distance closer to the Euclidean distance, contributing to the reduction of the distance travelled (red line in Figure 1 right). These passages prove to be advantageous both for nearby and faraway places. When distances between places are small – up to about 1500m, from 15 to 20 minutes – the pedestrian route is shorter, increasing the mobility of the elderly and children. On the other hand, when distances are greater – about 2000m, pedestrian routes over 30 minutes – motorized mobility is replaced by pedestrian mobility.

This innovative idea of opening passages through the interior of the blocks has other attractions, such as the interiors of the city blocks revitalization; creating spaces for socializing and leisure, particularly for children and the elderly; the possibility of creating new commercial spaces and consequently

community living; greater protection from external factors such as heat/cold, and noise and atmospheric pollution; greater comfort of the pavements, and the discovery of the buildings backyard by visitors.
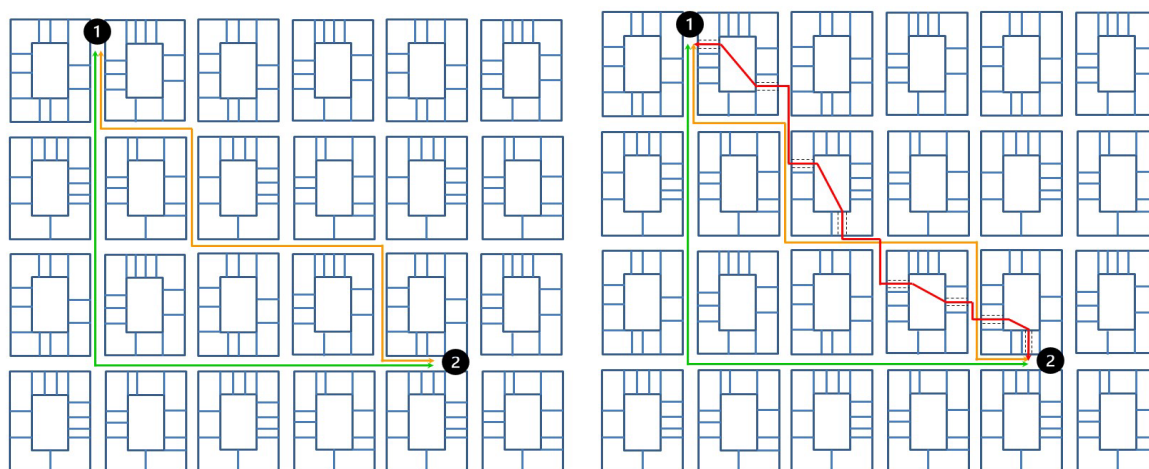
Figure 1. Paths between two places, without passages (left), and through the blocks using open passages (red line) (right)

LITERATURE REVIEW

Walkability is increasingly assessed for a variety of reasons that include recreational and social value and promotes mental and physical health.[3]

The ongoing discussion on air quality and climate changes positions walkability as a vital point of sustainable urban planning. Urban studies examine a city's walkability in terms of pedestrian flows, design qualities, and street network topology, leaving walkability comparative frameworks under development.[4] Walking should be the fundamental way of movement in the cities and COVID-19 (2019 pandemic) brought to light the urgency for walkable neighborhoods in metropolitan areas.[5]

To achieve these goals an interdisciplinary knowledge of the cities is necessary. The relationships between the built space (urban and architectural) and social behavior result from the establishment of guidelines between architecture and urbanism, this means the relationship of the human scale, and the sociological principles applied.[6] Leslie et al.[7] define walkability as "the extent to which characteristics of the built environment and land use may or may not be conducive to residents in the area walking for either leisure, exercise or recreation, to access services, or to travel to work" (Figure 2).
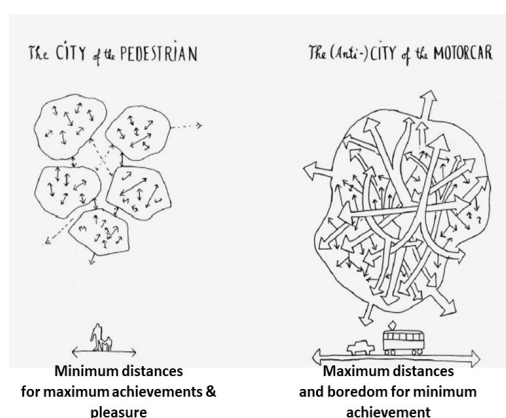
Figure 2. The city of the pedestrian and the (anti-)city of the motorcar. Source: adapted from Krier.[8]

Space syntax understands the impact of the spatial configuration of urban areas and buildings on the proportion of urban pedestrian movement determined by the grid configuration itself on people's natural movement.[9] It has been argued that street layout is the "primary generator of pedestrian movement",[10] so the street network, which is essentially a formal aspect of urban form, could influence pedestrian movement that could be measured according to the level of integration.[11]

As seen in Ribeiro et al.[12] and according to de Koning et al.,[13] the measures within space syntax that best capture spatial configurations[14] are the potential to-movement which measures how likely a street is to be a destination of a route – the angular segment integration analyses (i.e., how close each segment is to all others in terms of the sum of angular changes that are made on each route); and the potential through-movement which measures how likely a street is used as part of a route – the angular choice analysis (i.e., counting the number of times each street segment falls on the shortest path—least angular deviation between all pairs of segments within a selected distance or radius).

According to Orsini[15] the most important variables calculated by the angular segment analysis are choice and integration and while integration calculates the distance between all origin and destination spaces in a system (closeness), choice, known as betweenness centrality in graph theory, deals with the decision-making process and highlights which itinerary is preferred to move anywhere in the study area. Choice quantifies the flow passing through each space, by summing all nodes located on the shortest paths joining any destination from an origin space.

These two measures allow for simulations for comparisons of the before and after situations since they provide information on the spatial performance and morphological properties of the study area.

The space syntax methodology makes it possible to identify regeneration opportunities, ensuring that new proposals respond to the spatial potentials of existing urban areas and as research has shown, there is a correlation between pedestrian and vehicular movement and the spatial configuration of the street network.[16]

CASE STUDIES

To compare Lisbon and New York, an area in each town was selected.

Bairro dos Actores (a neighborhood in Lisbon) was built in the 1930s, as a part of The General Plan for Urbanization and Expansion of Lisbon (PGUEL) of 1938-1948.[17] It is limited to the west by Almirante Reis Avenue (Avenida Almirante Reis) and to the south by Dom Afonso Henriques Avenue (Alameda Dom Afonso Henriques) (Figure 3 left), defining an irregular orthogonal urban fabric with blocks of 60m x 150m and 60m x 100m.

The New York area selected is a part of Upper East Side composed of residential structures built after the American Civil War, mansions and townhouses built at the beginning of the 20th century, and apartment buildings erected later, mainly built from the 1950s to the 1970s.[18] It is a regular orthogonal urban fabric with blocks of 70m x 130m, limited by 3rd and 5th Avenues and by 72nd and 79th streets (Figure 3 right).

The sense of opening the passages was based on the analysis of the blocks in terms of some vacant spaces belonging to the buildings, predominantly on the ground floor, awaiting rehabilitation, and interventions in terms of uses and functions to adjust to the new needs of the neighborhood and greater urban mobility. In addition, sometimes, between the buildings there are fenced spaces/passages that can be rehabilitated or intervened, allowing the crossing through the interior of the blocks (Figure 4).

Figure 3. Selected areas in Lisbon (left) and New York (right)
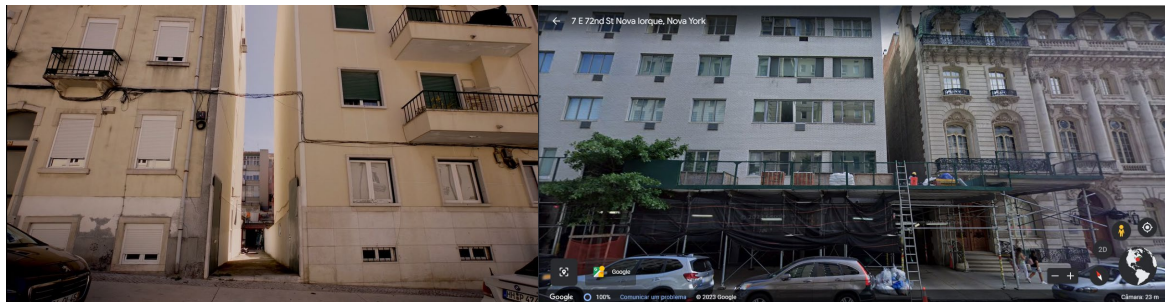
Figure 4. Spaces/passages pre-existing in Lisbon (left) and New York (right)

In both areas the relationship between urban form and its use, allows both places to become safe, inclusive, and resilient, and existing spatial configurations must be reconsidered, solving urban spatial conflicts, and creating attractiveness and well-being for those who live and travel both areas.

MATERIALS AND METHODS

Google Road map of Manhattan and Lisbon was used to select the places where it might be possible to open passages through the interior of the city blocks to improve the walkability.

Computer simulations were performed using the QGIS software (version 3.22), using the space syntax toolkit, developed by Gil,[19] for syntactic analysis.

The syntactic measures that best express the movement potential in the spatial configuration is the "integration", which measures the probability that a segment of a path is a destination of a route, that is, how close each segment is to all the others in terms of the sum of the changes in directions that are made on each route.

Another syntactic measure will be the "choice" that reflects the probability that each section of a path can be used as part of a route, i.e., counting the number of times each segment of a route falls on the shortest path offset between all pairs of segments within a selected distance.

In essence, these two measures allow understanding the two essential components of human movement: deciding where to go, known as integration, and selecting a path to reach that destination, known as choice. The first measures the level of convenience in reaching the destination (integration) – ease of access, while the second measures the amount of traffic passing through a given route (choice) – passing flow.

Considering the size of the Manhattan and Lisbon study areas, to reduce the impact of edge effects has been outlined a buffer area of 3600m, which corresponds to an average walking time of approximately 45 minutes.

For both study areas and using the same software, walkability simulations were carried out for different radii (150, 250, 400, 800, 1200, 1600, 2000, 2400 and 2800m) either for the current situation (without passing through the interior of the blocks) and with the suggested passages through the

interior of the blocks using the two syntactic measures – choice and integration – to identify the increase/improvement of walkability within the study areas.

RESULTS AND DISCUSSION

For the current situation the ease of access (integration) in Lisbon is higher than in New York for radii between 150m and 2000m, and lower for greater radii (QGIS output in Figure 5 and dark blue and red lines in Figure 6), for both means and maximums. While in New York, the mean and maximum integration values (red lines in Figure 6) always increase with the growth of radii; in Lisbon, the mean and maximum integration values (blue lines in Figure 6) increase with the growth of radii up to 1600m, stabilizing for higher radii.

Given the identical morphology of the neighborhoods in both study areas, it is possibly the size of the city that can contribute to explaining the differences in the behavior of the integration measure of both cities.

Despite further studies are required, larger cities the integration is high when radii are high, while for smaller cities the integration only is high for small radii.

The opening of passages in urban fabric of both study areas seems to demonstrate an increase in the maximum values of ease of access (light blue and orange lines in Figure 6 right). The opening of passages in the Lisbon neighborhood translates into an increase in the mean values of ease of access at all radii (blue lines in Figure 6 left), while this only happens in New York for radii between 150m and 1600m (red and orange lines in Figure 6 left).

In orthogonal urban fabrics, the opening of passages seems to induce more walking in small cities (Lisbon) and only has this effect in large cities (New York) up to a certain distance (1600m), when integration mean values are considered. It can also be said that the opening of passages in Lisbon and New York helped to neighborhoods increases the walkability of up to 15-20 minutes, which are 20-30 minutes for the most vulnerable people (children and the elderly), influencing only the ease of access in smaller cities on longer walks.

Figure 5. Integration for Lisbon and New York
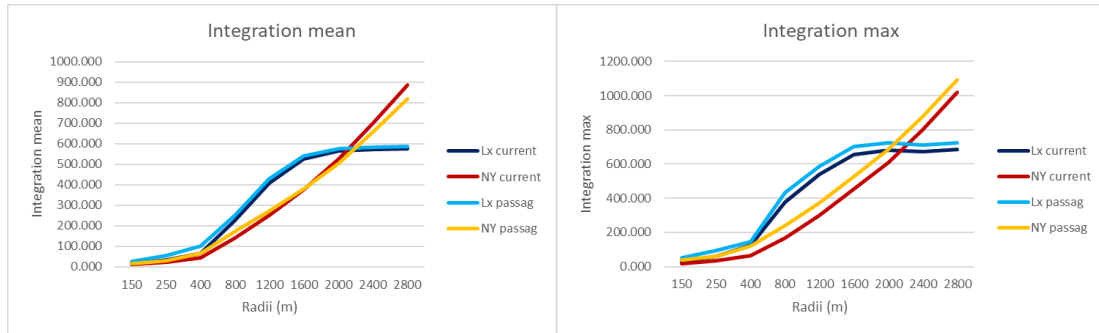
Figure 6. Integration mean (left) and Integration max (right) for Lisbon and New York

For current situation the passing flow (choice) in Lisbon is higher than in New York. In fact, Lisbon's mean and maximum choice is greater than New York's (QGIS output in Figure 7 and dark blue and red lines in Figure 8), for all radii. Opening passages in the study areas urban fabrics unequivocally increases the passing flow in both cities (light blue and orange lines in Figure 8). However, such an increase is more evident in smaller radii, and especially in New York.
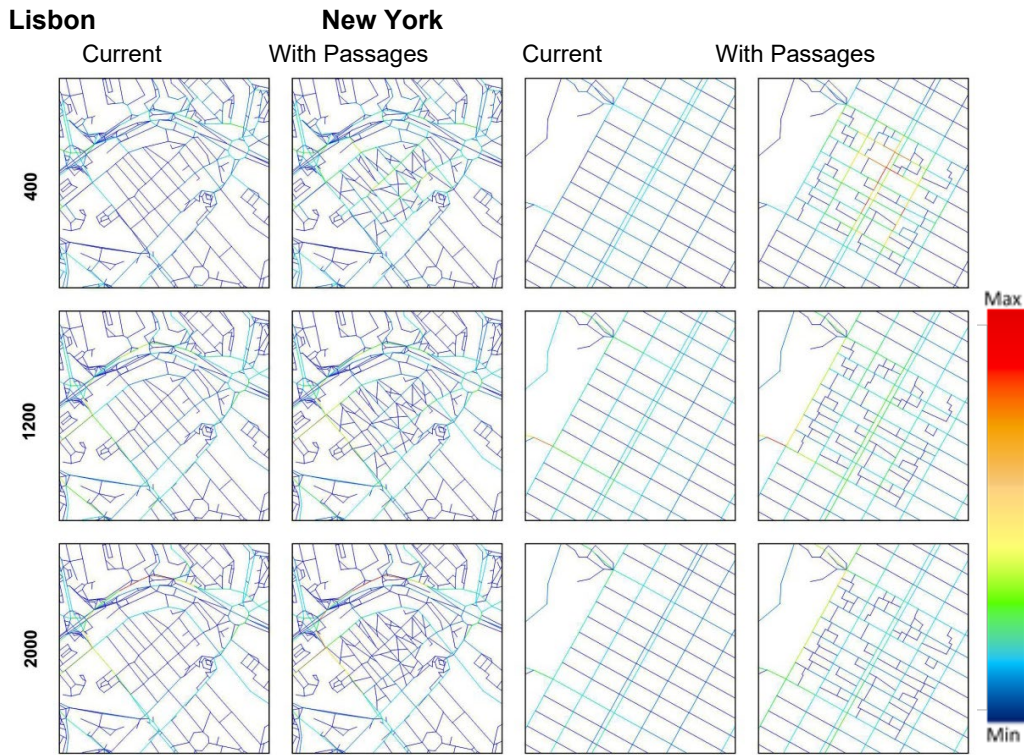
Figure 7. Choice for Lisbon and New York
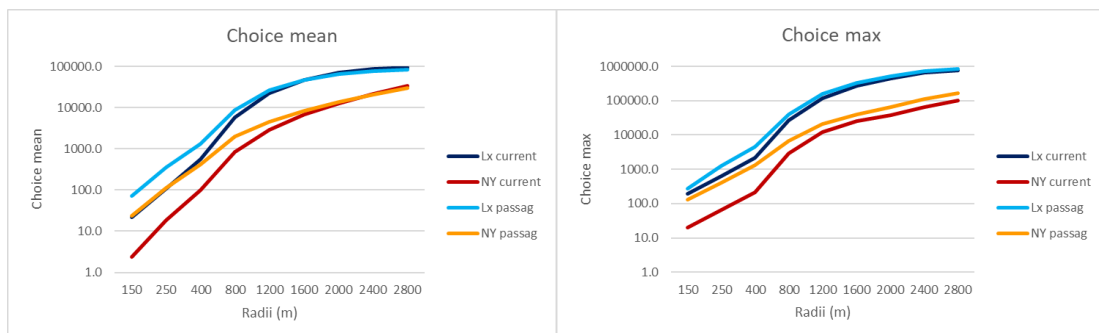
Figure 8. Choice mean (left) and Choice max (right) for Lisbon and New York

In Lisbon, the choice mean (Figure 8 left) of the urban fabric with open passages is much higher than that of the current urban fabric, for distances between 150 and 400m, reducing this difference between 800 and 1200m. At 1600m the choice mean of the current urban fabric slightly exceeds that of the urban fabric with open passages. The choice maximum shows identical behavior, although the biggest differences between the two urban fabrics of Lisbon occur between 250 and 400m (blue lines in Figure 8 right). The choice maximum of Lisbon's current urban fabric does not go beyond the urban fabric with open passages.

In New York, the choice mean (red and orange lines in Figure 8 left) of the urban fabric with open passages is also much higher than that of the current urban fabric for distances between 150 and 800m, decreasing that difference between 1200 and 1600m. At 2400m the choice mean of the current urban fabric slightly exceeds that of the urban fabric with open passages. The choice maximum shows identical behavior, although the greatest differences between the two urban fabrics of New York occur between 150 and 400m (red and orange lines in Figure 8 right). Also, the choice maximum of the current urban fabric of New York does not go beyond that of the urban fabric with open passages.

Given that the neighborhoods of both study areas are morphologically identical, it seems to be the size of the city that can explains that the passing flow is strongly influenced by the opening of passages up to distances of 400m in Lisbon and up to 800m in New York. The radius of influence of the open passages is also smaller in Lisbon (1600m) than in New York (2400m). So, in orthogonal urban fabrics, the larger the cities, the greater the radius of influence of the passages opened. It can also be said that the open passages in the Lisbon and New York neighborhoods increase the passing flow on trips of up to 15-20 minutes, i.e., 20-30 minutes for more vulnerable people (children and the elderly), not influencing the passing stream on longer walks.

CONCLUSION

A city is livable if it is attractive to live in.

The idea of opening passages through the city blocks emerges precisely to make the city more livable. Instead of people taking the same routes as motorized transport, alternatives are proposed that make the routes richer, safer for children and the elderly, and can be more culturally attractive. There is a great need today to make cities "child-friendly" and "elderly-friendly". The implementation of this idea is aligned with SDG3, 11, and 13 to improve the lives of older people, their families, and the communities in which they live in, as well as with the UN's Healthy Aging Decade 2021-23.[20]

This innovative idea of opening passages through the interior of the blocks has other advantages, such as revitalizing the interiors of city blocks, creating spaces for socializing and leisure, particularly for children and elderly, the possibility for creating new commercial spaces and consequently, community living, greater protection from external factors such as heat/cold, noise, and atmospheric pollution, greater comfort of the pavements, and the discovery of the buildings' backyard by visitors.

Opening passages through the blocks will increase pedestrian trips, and consequently, people will walk more in their daily lives. This would lead to a significant reduction in the use of cars, buses, and taxis, contributing to a better environment and better health.

In terms of the passing flow it is strongly influenced by the opening of passages essentially up to distances of 400m in Lisbon and up to 800m in New York and given that the neighborhoods of both study areas are morphologically identical, it seems to be the size of the city that can explain these differences.

Hence it can also be said that the opening of passages in the Lisbon and New York neighborhoods can increase the passing flow on trips of up to 15-20 minutes, i.e., 20-30 minutes for more vulnerable people (children and elderly), not influencing the passing stream on longer walks.

Undoubtedly, this poses a significant governance challenge and requires a paradigm shift in the public and private urban land definition. However, the urgency for climate actions calls for bold decisions.

ACKNOWLEDGMENT

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RAISING DEMAND FOR QUALITY PUBLIC SPACE AMONG YOUNG CITIZENS. PARTICIPATORY PROCESSES IN THE EDUCATING CITY

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INTRODUCTION[1]

The degree of livability of a city is mainly related to environmental, structural, urban planning, economic factors, and essentially to the policies implemented by governments and administrations. However, how people relate to the city can also influence how livable the city is. Encouraging citizens to have a more conscious, informed and active relationship with the places where they live can have a significant impact not only on the perception and maintenance of common spaces, but also on lifestyles, mobility, ways of sharing urban space and living together. Educating citizens to observe and analyse the city strengthens their sense of belonging and, in the long term, can increase people's ability to influence change through the exercise of democratic rights, changing everyday behaviour and fostering the ability and willingness to actively participate. Building a culture of participation, sustainability, respect for the common good, inclusion and diversity, as well as widening access to education and cultural heritage (CH) in the area, are actions that have an important impact on social cohesion and the care of urban space and encourage increased demand for quality public space and collective commitment to a more livable city. These educational actions are important in all contexts and at all ages, but they become crucial when they are aimed at citizens in education; they should therefore not be limited to niche contexts, to occasional initiatives by museums and cultural centres, but should concern all children and therefore, first and foremost, the school as the main educational institution, widespread and accessible to all.

This essay refers to two interdisciplinary research projects, one in Italy at national level, the other at European level. The two projects are based on the co-design of innovative, accessible, interdisciplinary and inclusive educational methods by teachers, researchers, public and private institutions and associations, in order to improve young citizen's ability to analyze the context in which they live and to foster in them a sense of belonging to their neighborhood, a sense of active citizenship and responsibility for the common good. The text discusses the projects in relation to the theme of urban livability and the concept of the Educating City (EC), questioning the potential of educational projects to improve urban livability, particularly in relation to issues of access to education, participation, inclusion, quality of public space and sustainability.

CULTURAL HERITAGE AND LANDSCAPE EDUCATION POLICIES IN EUROPE

The emergence of the European Landscape Convention (ELC) in 2000[2] shifted the focus from landscape contexts of excellence to all landscapes, including the ordinary landscapes of everyday life, marking an important turning point for European policy in terms of recognising the value of living contexts and citizens' perception. More than twenty years later, however, ELC is still little known and little studied in education, especially in schools, and its actual application remains an open question.[3] The Convention recognises landscape, even if ordinary or degraded, as a cultural heritage "derived from its natural configuration and/or from human activity" (Art. 1) and links it to the concepts of identity, diversity and community: "Each Party undertakes to recognise landscapes in law as an essential component of people's surroundings, an expression of the diversity of their shared cultural and natural heritage, and a foundation of their identity". The text reaffirms the importance of activating educational activities (Art. 6) but devotes only a few lines to the subject and does not propose a direct link with heritage education. However, linking the ELC approach with heritage education provides a better understanding of how it can be spread across the territory and strengthen citizens' links with their living environment. The Recommendation concerning heritage education published by the Council of Europe in 1998[4] also calls for CH to be seen as a vehicle for participation and active citizenship, and for a close link to be established between heritage and territory[5]; in this sense, urban and peri-urban landscapes, in their physical but also social and cultural components, can become important educational agents.

LIVABLE CITIES, EDUCATING CITIES

The concept of the educating city is the pillar on which the International Association of Educating Cities (IAEC)[6] is based. Founded in 1994, it is a non-profit organization, set up as a permanent structure for cooperation between local governments and has around 500 member cities in 35 countries on all continents. Inspired by the theme of the "right to the city", in reference to the reflections of the French sociologist Henri Lefebvre at the end of the 1960s,[7] the network is made up of local governments committed to education as a tool for social transformation and to promoting the exchange of ideas, reflections and good practices.

The association draws on several documents and declarations, including the World Charter for the Right to the City (2001),[8] the Paris Agreement on Climate Change (2015),[9] and the 2030 Agenda for Sustainable Development (2015).[10] In the preamble of the *Charter of Educating Cities*, we read: "today, more than ever before, cities and towns […] have major elements for a holistic education: they are complex systems yet also lifelong educational agents, both plural and multi-faceted, capable of fostering educational and social transformation factors."[11] According to this vision education is an ongoing process that goes beyond the school walls to permeate the entire city and involve the communities. In this sense, the role of education is to be considered on a par with the other multiple functions of the city (economic, social, political and service provision) and its aim is to empower people of all ages to respond to their educational needs and "to raise awareness in order to balance out freedom and responsibility, triggering the feeling of interdependence between people and nature as a way of inhabiting the city and the planet, promoting reflection and critical thinking, as in the ability to understand complex problems; fostering jointly responsible engagement in the design and development of policies; and imagining and picturing lifestyles that do not imply the destruction of the territory or inequality between people".[12]

A CITY EDUCATION PROJECT IN THE OUTSKIRTS

The idea of the city as a place, a theme and a driver of education is the basis of the research and action project "ScAR Schools Activate Resources", launched in 2018 thanks to the Politecnico di Milano's Commitment and Social Responsibility Programme called Polisocial and coordinated by an

interdisciplinary research group of the same university, in collaboration with a diverse group of public and private stakeholders and numerous schools, including five pilot schools located in vulnerable and peripheral areas of the city.[13] In total, the project involved over seven hundred students from primary to secondary schools, as well as undergraduate and postgraduate students.

Through a process of co-design between researchers, teachers, administrators, associations and cultural bodies, ScAR has developed and tested a set of good practices, which are proposed as an open and implementable methodology, available to teachers and educators in general, and which, for the sake of simplicity, we can call "the ScAR method", not to be understood as a defined and codified system, but rather as a collective work in progress. For an in-depth description of the project, please refer to the dedicated publications,[14] nevertheless in this case we would like to return to the experience in order to reflect specifically on the issues of urban livability and the concept of the educating city.
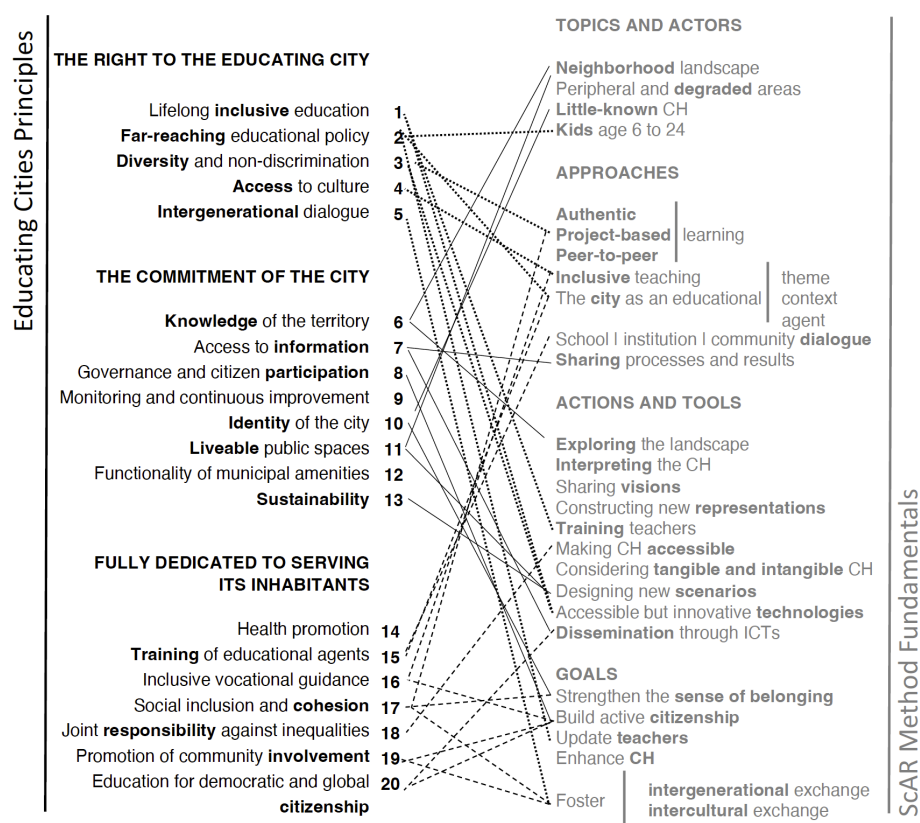
Figure 1. The diagram shows some of the possible connections between the 20 principles enunciated by the Charter of the Educating Cities and "the ScAR method".

The ScAR project was not carried out in a city that is part of the IAEC network, and the research team was not familiar with the association. However, five years after its launch, it is interesting to re-read the project in the light of the principles of this international reality, to reflect on the commonalities and specificities that characterise the ScAR experience, and to focus reflection on the concept of the livable city, which is closely linked to that of the educating city. The project is now complete, allowing us to draw conclusions from the experience gained in the field; at the same time, its action is not yet finished, as new collaborations and follow-up experiences have emerged from the scientific discourse generated by the dissemination of the project, through which the "ScAR method" continues to grow and evolve.

The diagram shown here (Figure 1) shows some of the principles of ECs, as set out in the *Charter of Educating Cities*, and their direct links to the fundamentals and approaches of the ScAR project. The 20 principles set out in the Charter are organised in three sections as follows: "The Right to the Educating City", "The Commitment of the City", "Fully Dedicated to Serving its Inhabitants". The following paragraphs outline the principles set out in the sections, selecting the themes that are closest to the ScAR experience, with the aim of verifying the extent to which the project and the methodological proposal that resulted from it can form a resource for disseminating and improving educational cities, and at the same time identifying new lines of action and new objectives to guide the development of research.

Figure 2. Upper secondary school students mapping the surroundings of their school in the periphery of Milan (on the left) and lower secondary students mapping landscape landmarks during a workshop in collaboration with the Prada Foundation (on the right).

The ScAR experience and the right to the educating city

For citizens to be able to exercise their right to an educating city, access to culture is essential: people's participation in cultural life – a right recognised as fundamental by the Faro Convention (2005)[15] – is a vehicle for inclusion and a driver for the development of a sense of belonging.[16] Accessibility of CH, understood not only in a physical and economic sense, but also in a cognitive, cultural and social sense, was a major theme of the ScAR project. In order to bring CH closer to all social groups and cultural communities, it is important to break out of the narrow confines of outstanding monuments and national narratives, and to introduce citizens, especially young people, to specific, local marginal expressions that allow the concept to be introduced that every cultural expression has value, regardless of whether it is an expression of a dominant culture. The links between heritage education and multicultural society have long been explored in the European context,[17] but heritage education in school curricula, where it exists, remains mostly limited to the study of masterpieces of art history, which is obviously desirable in itself. The experimentation of the ScAR project proposed a different approach that, without replacing the traditional study of disciplines, introduced the exploration of different educational paths, from an experiential and transdisciplinary perspective. All the activities promoted by what could be called "the ScAR method" are based on knowledge of the territory: the different educational pathways tested involve different forms of exploration and study of the areas surrounding the schools, with radii that vary according to the nature of the project, the school order and the age of the children. In this way education goes beyond the school walls and permeates streets, squares and parks. In line with contemporary heritage studies,[18] the project took CH as a constantly evolving system of values identified by the population, and activated a series of paths of discovery, study, interpretation and communication of the cultural values expressed by the territory, starting from the areas close to the schools, the landscape of the daily lives of students and their families (Figures 2-4). The very identification of the places and assets to be

studied was the subject of discussion with the children, giving space to their views, their families' memories and the consultation of groups of citizens, such as representatives of territorial associations, the elderly or ethnic or religious communities present in the neighbourhoods. Children and teachers were involved in all stages of the process, thus changing their role from passive users of CH and the cultural offers of the institutions to protagonists in the discovery and enhancement of the local CH, of which they became experts and active promoters. The shared knowledge-building process underlying ScAR is in line with one of the basic principles of ECs: the right of all to access the educational potential of the city also implies the duty of each citizen to contribute to educational action, through individual behaviour, but also through participation and associationism.

The ScAR experience and the commitment of the city

In an EC, knowledge of the territory and access to information are fundamental principles. One of the aims of the ScAR project was to provide schools with an update on the use of digital technologies in educational processes and to promote a conscious and responsible use of technologies among students.[19] As part of educational projects with schools, students and teachers, with the support of experts, have created digital products to collect and disseminate knowledge about the area, and then made them available to the general public, in the spirit of authentic learning and digital participation (Figure 3).[20] These tools, which are still active and available to other schools, citizens, local communities and Italian and foreign tourists, are aimed at spreading knowledge about the material and immaterial heritage of the urban periphery, strengthening the sense of belonging of the inhabitants, enhancing the identity of often stigmatised areas, attracting visitors to areas off the tourist track and keeping alive the value of diversity and the coexistence of cultures. The digital mapping action, initiated in collaboration with the local museum of the territory, is still open to anyone who wishes to participate by offering their contribution to enrich the digital collections created by the students and other citizens already active on the platform.[21] The students have also designed small-scale urban regeneration projects, some of which are in negotiation with the municipality for implementation, including in collaboration with private companies. In this way, ScAR wanted to raise young citizens' awareness of the livability of public spaces and demonstrate the potential of bottom-up participation and cooperation between different bodies (Figure 4).
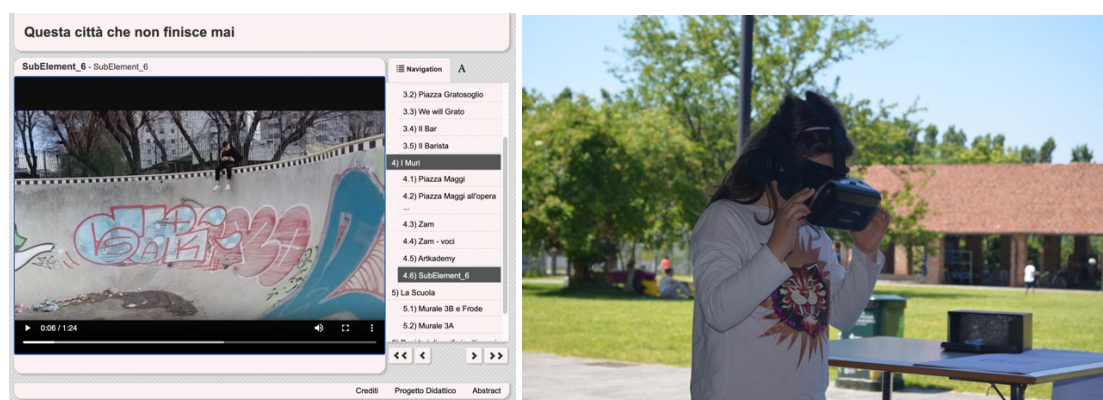
Figure 3. Examples of the use of ICTs in CH education. On the left: a frame of digital storytelling created by students of a secondary school. The narration investigates the relationship between street art and poetry in a peripheral neighborhood of Milan (Italy). On the right: a primary school student texts the virtual tour of a peripheral neighborhood of Milan created in collaboration with the local upper secondary school.

ScAR for a city fully dedicated to serving its inhabitants

"The educating city should provide the entire population with education in the values and practices of democratic citizenship that foster respect, tolerance, participation, responsibility, interest in public life, and commitment to the common good".[22] The educational pathways activated in the context of ScAR have made it possible to develop all skills, including those of pupils with special needs, and to create situations of exchange and cooperation between children and seniors, and between schools and families from different backgrounds. The idea was to train teachers, but also families and other agents who fulfil educational roles, by providing them with a set of practices and tools for cultural heritage education as a means of inclusion and social cohesion.
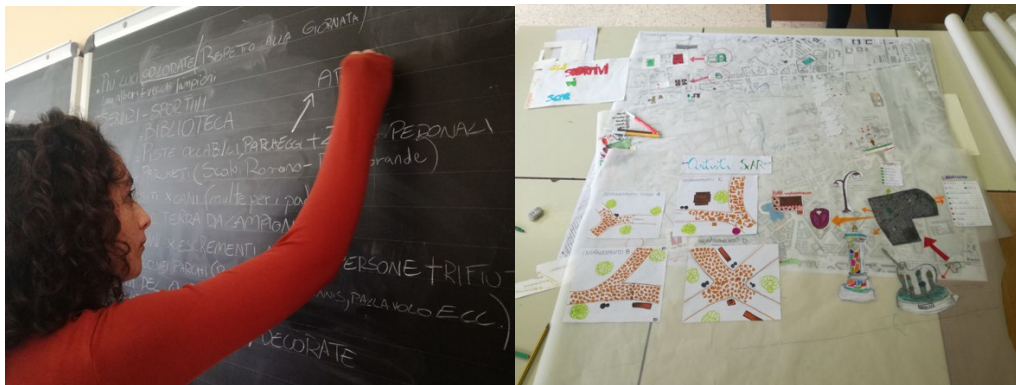
Figure 4. Workshop of public space co-design in lower secondary school

EDUCATION FOR SUSTAINABILITY AND LANDSCAPE, A EUROPEAN PROJECT

The actions initiated by the ScAR experience are now being continued in a larger European project involving researchers and teachers from Spain, Italy and Austria. The "Edulands for Transition" project, funded by the European Erasmus+ programme, aims to build a pedagogical methodology that facilitates the connection between schools and their surrounding landscape (Figure 5).[23] The project adopts a transversal, multidisciplinary and collaborative approach and aims to co-create tools that can be easily adapted to any local context. Due to the international and interdisciplinary nature of the project, the approaches to landscape and ecological transition are diverse: from landscape as food and life cycle, to landscape as inner reality and sensory experience, to landscape as history, memory and common heritage. The challenge that Edulands proposes for the coming years is to accompany the new generations in a transition that is also – and above all – cultural and social, starting from the places, urban and otherwise, where the students live, inviting them to get to know and care for them.

Figure 5. A survey in the historical water-meadow area in Parco Lambro (Milan, Italy) and a workshop of maintenance and caring of the landscape during the training activities of the international team of the Eduland project.

CONCLUSION

An analysis of the principles of the EC shows that the projects mentioned here respond effectively to the principles of the e ducating city. In fact, they propose the school as the heart and engine of the EC, but also involve communities, institutions and administrations, thus bringing together different skills and social roles, potentially reaching all citizens; the school is in fact the first educational agent and also the first place to build a culture of inclusion and social cohesion for the future.

Both projects, through bottom-up dynamics and the integration of analogue and digital techniques, focus on the construction of new representations of the urban and peri-urban landscape, which are at once mental and material, textual and visual, individual and collective, concrete and visionary, and which take many forms: maps, stories, drawings, narratives, more or less complex digital applications.[24] These representations have proven to be essential for the understanding, confrontation, dialogue and dissemination of an educational process that involves the whole city and looks towards a sustainable future.

The testimonies of teachers, students and managers collected at the end of the ScAR[25] project testify to the importance of taking education out of the classroom, of highlighting the relationship that binds children and their communities to the city, in particular the space where families live their daily lives (neighbourhoods, the 15-minute city, home-school routes....). This creates a permeability between the school and the city and a synergy between the educational potential of the school and that of the city, stimulating respect for the common good and the conscious pursuit of a more livable city for all. Like the city in general, landscape and CH are complex, multifaceted phenomena that are often difficult to understand, interpret, represent and even identify in terms of the many different meanings they can take in relation to communities. For this reason, CH education stimulates reflection and critical thinking, as well as the ability to understand complex problems, and is therefore a key instrument for familiarising young people with the challenges of coexistence, inclusion, mutual understanding and cooperation for a shared community project and an effective ecological and cultural transition.

NOTES

[1] This paper discusses an interdepartmental and interdisciplinary research, the author is affiliated to the Department of Architecture and Urban Studies of Politecnico di Milano (Italy).

[2] Council of Europe, *European Landscape* Convention, 2000.
https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=09000016802f80c6

[3] Council of Europe, ed., *Landscape facets: Reflections and proposals for the implementation of the European Landscape Convention* (Strasbourg: Council of Europe Publishing, 2012); Council of Europe, ed., *Landscape dimensions. Reflections and proposals for the implementation of the European Landscape Convention* (Strasbourg: Council of Europe Publishing, 2017).

[4] Council of Europe, *Recommendation of the Committee of Ministers to member states concerning heritage* education, 1998 (Recommendation n. R (98) 5). https://rm.coe.int/16804f1ca1.

[5] Lida Branchesi, ed. *Heritage Education for Europe* (Roma: Armando Editore, 2007); Benedetta Castiglioni, "Education on landscape for children", in *Landscape facets Reflections and proposals for the implementation of the European Landscape* Convention, ed. Council of Europe *(*Strasbourg: Council of Europe Publishing, 2012), 217-264.

[6] "International Association of the Educating Cities", accessed August 5, 2023, https://www.edcities.org/

[7] Henry Lefebvre, "Right to the city", in *Writings on cities* (Oxford: Blackwell Publishing), 147-159.

[8] World Charter for the Right to the City, drafted in the World Social Forum in Porto Alegre Brazil 2001. Available on the Global Platform for the Right to the City https://www.right2city.org/

[9] United Nations, Paris Agreement on Climate Change, adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, in 2015 Available on the UBFCCC secretariat portal https://unfccc.int/, accessed August 5, 2023.

[10] United Nations, 2030 Agenda for Sustainable Development, available on the Division for Sustainable Development Goals in the United Nations Department of Economic and Social Affairs portal https://sdgs.un.org/.

[11] International Association of the Educating Cities (IAEC), *Charter of Educating Cities*, 2020. Available on the IAEC portal https://www.edcities.org/, 4, accessed August 5, 2023.

[12] International Association of the Educating Cities (IAEC), 5.

[13] "Schools Activate Resources Project", accessed August 5, 2023, http://www.scar.polimi.it/, accessed August 5, 2023.

[14] Camilla Casonato, Marco Vedoà and Cossa Gloria, *Discovering the everyday landscape. A cultural heritage education project in the urban periphery* (Siracusa: LetteraVentidue Edizioni, 2022),
https://www.google.it/books/edition/Discovering_the_everyday_landscape/VzOVEAAAQBAJ?hl=it&gbpv=0;
Camilla Casonato and Bertrando Bonfantini, eds. *Cultural Heritage Education in the Everyday landscape. School, Citizenship, Space, and Representation* (Cham: Springer, 2022).

[15] Council of Europe, *Council of Europe Framework Convention on the Value of Cultural Heritage for Society*, *Faro Convention*, 2005. https://rm.coe.int/1680083746, accessed August 5, 2023.

[16] Thomas Carter, David Harvey, Roy Jones, and Iain Robertson, eds. *Creating Heritage. Unrecognised Pasts and Rejected Futures* (Losanne: Routledge, 2020).

[17] Tim Copeland, "Whose monuments, are they? Whose past is it? The multicultural use of monuments", in *Cultural heritage and its educational implications: a factor for tolerance, good citizenship and social integration*, ed. Council of Europe (Strasbourg: Council of Europe Publishing, 1998), 39-43; Tim Copeland, *European democratic citizenship, heritage education and identity* (Strasbourg: Council of Europe Publishing, 2006).

[18] Gabor Sonkoly and Tanja Vahtikari, *Innovation in Cultural Heritage Research. For an integrated European Research Policy* (Lussemburgo: Publication Office of the European Commission, 2018).

[19] Alessandro Luigini, ed. *Proceedings of the 1st International and Interdisciplinary Conference on Digital Environments for Education, Arts and Heritage, EARTH 2018* (Cham: Springer, 2019); Michela Ott, Francesca Pozzi, "Towards a new era for Cultural Heritage Education. Discussing the role of ICT". Computers in Human Behavior 27 (2011): 1365-1371.

[20] Camilla Casonato, Marco Vedoà and Cossa Gloria, *Discovering the everyday* landscape, 125-156.

[21] See the Ecomuseo Milano Sud (MUMI) website https://www.mumi-ecomuseo.it/.

[22] International Association of the Educating Cities (IAEC), *Charter of Educating Cities*, 2020. Available on the IAEC portal https://www.edcities.org/, 18.

[23] "Edulands for Transition project", accessed August 5, 2023, https://edulands.eu/

[24] Emma Waterton and Steve Watson, *Culture, Heritage and representation. Perspectives on Visuality and the past* (Farnham: Ashgate, 2010); Camilla Casonato "Cultural Heritage Education: a Matter of Representation", in

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[25] Camilla Casonato, Marco Vedoà and Cossa Gloria, *Discovering the everyday landscape,* 183-207.

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INCREMENTAL CITY: AN URBAN CODING STRATEGY TO CREATE LIVABLE FUTURE CO-PRODUCED NEIGHBORHOODS

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INTRODUCTION

Prognoses by the UN assume that by 2050 the number of inhabitants of informal settlements in the global south will increase significantly due to continuous population growth and urbanization.[1] Various experts are demanding to accept the informal sector as the predominant form of future urban space production, anticipate the development of self-built settlements, and incorporate them into formal planning processes.[2]

The concept of the Incremental City described in this paper takes up the above-mentioned approach of anticipation and develops it further into a hybrid urban development model that brings together aspects of top-down planning and bottom-up self-organization as well as giving ample space for informal self-building.[3]

This planning approach depends on good governance and the principles of participation in decision-making processes, collaboration during implementation and joint responsibility for the result. In this context, it is particularly decisive how the interface between the formal and the informal level is designed and how the power of decision and responsibility are allocated, to enable the successful coproduction of future urban extensions.

The urban coding of this model is based on two pillars: the urban plan, a structural concept and the associated key figures for city planning, as well as the urban code, the fundamental rules and obligations for inhabitants and responsible authorities. Through the combination of spatial urban structures and application-oriented regulations, an alternative urban development model is created that may serve as a tool in various planning processes in the context of future co-produced cities.

This paper outlines the key aspects of this planning strategy based on a dissertation published in 2021. In addition, the results of an urban planning master studio at KIT show how these planning principles work in a fictional planning task and how they could be applied in similar planning situations.[4]

„Expansion of Cities is important as long as they are well planned. Well planned doesn´t mean making an instant, perfect city. It means providing the infrastructure of a messy and incremental city."[5] (Ricky Burdett, *The Quito Papers: Towards an Open City.* LSE Cities, 2016, Min 10:30)
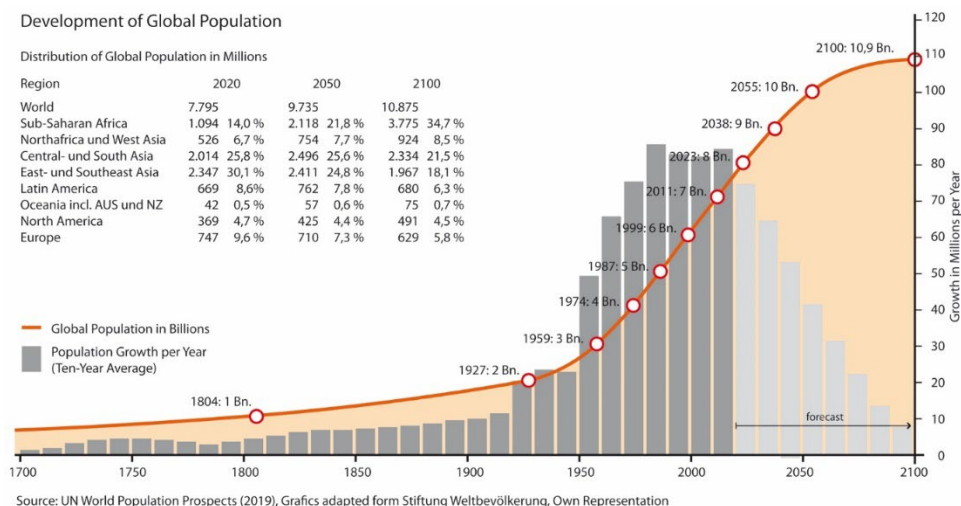
Figure 3. Growth of global population and geographic distribution
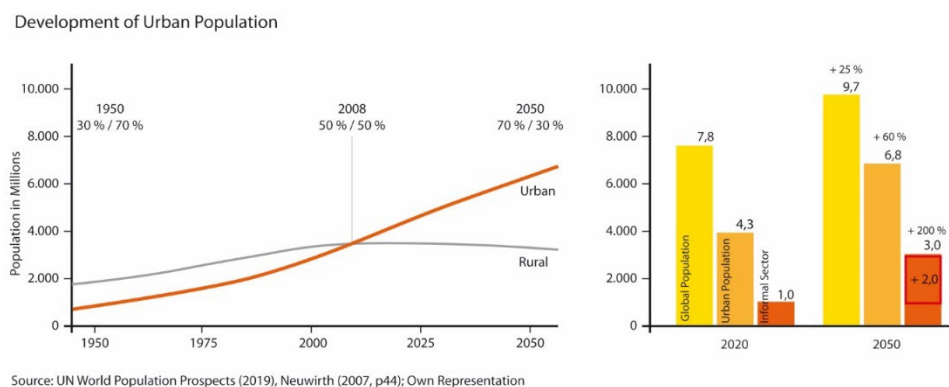
Figure 4. Growth of rural and urban population and share of informal sector

RESEARCH GAP AND METHODOLOGY

Objective

Starting point is the assumption that we have to accept the informal sector as the predominant form of urban space production in the future.[6] Demographics and urban growth are predictable and sufficiently accurate to allow anticipating the extension of self-built settlements. What would planning for the incremental self-build look like in concrete terms?

The objective is to develop a modular and scalable planning approach for a co-produced city using a combination of robust infrastructure[7] and flexible self-built infill.[8]

Hypothesis

A hybrid urban development model can combine the strengths of supportive formal planning (top-down) with the flexibility and efficiency of informal urban production (bottom-up) in future co-produced cities.

Through urban coding, a combination of a structural concept and urban planning metrics (urban plan), as well as appropriate planning requirements, design patterns, and a code of conduct (urban code), dynamic urban growth can be managed.

Research Methodology

This urban coding strategy is divided into three steps.[9] Essentially, the presented approach consists of (i) an analysis part, (ii) a translation of the findings into formalized design patterns, and finally (iii) an application of the developed set of rules for coproduction. To answer the research questions, this work draws on various sources of knowledge between theory and practice. In doing so, it draws on a foundation of personal experience and first-hand observation on the ground in various regions of Asia, Africa and Latin America. Another basis is the professional background in architecture, urban planning and strategic land development.

The research methodology consists of four parts. The first part includes the work with literature sources in the thematic field of informal settlement development and self-building. The second part represents the analyses of case studies, which cover both the structural characteristics and urban development indicators as well as the historical and social framework conditions. The third part represents the coding process, i.e., the development of a planning tool for the co-produced city. The development of such a design toolbox has a significant design component and therefore can be methodologically referred to as research by design. Finally, in the fourth part, test designs are carried out in a workshop and urban planning master studio to test the design patterns for applicability and to ensure that the design results meet the formulated requirements.

Incremental Housing, Quinta Monroy, Iquique, Chile   Self-Constructed City; Villa El Salvador, Lima, Peru

Figure 5. From Incremental Housing to the Incremental City

DE-CODING: Analyzing the Self-Built City
Case Studies

To analyze and compare the urban qualities of planned self-constructed neighborhoods six case studies have been selected. Criteria for the selection of projects were as follows: A location in the global south, a planned urban structure for low-income residents, and a concept characterized by gradual development in self-building on the plot. As well as an already realized and consolidated structure and at least 30 years since the beginning of the settlement to derive conclusions about the dynamics of densification and other long-term effects.

The selected projects are Nezahualcóyotl in Mexico City, Mexico; Solanda in Quito, Ecuador; Villa El Salvador in Lima, Peru; Carrières Centrales in Casablanca, Morrocco; Ard el-Lewa in Cairo, Egypt and Aranya in Indore, India.
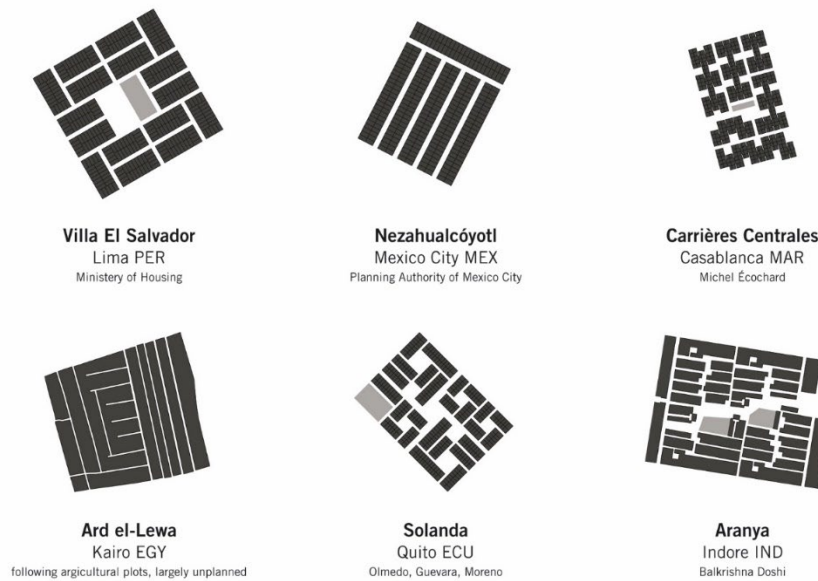
Figure 6. Scale comparison of neighborhood modules of the respective case studies.

First, each case study has been analyzed regarding the individual historic background, the stakeholders involved and its relation to the surrounding city and neighborhoods. Second, all case studies have been drawn to scale as a basis to analyze their urban structure and key figures of urban planning regarding road and transport networks, public space system, structure of plot layouts and distribution of functions and corresponding figure ground plan. This was combined with data regarding building heights, density, plot coverage and number of residents.

Findings and intermediate conclusions

Each of the six projects has a unique history of development and structure of stakeholders. In some analyzed aspects of urban planning, we find similarities, in others, there are substantial differences. The following paragraph summarizes the five key findings:

Structure and Hierarchy: All projects follow a modular-hierarchical structure that ranges from rigid orthogonal grids like in Villa El Salvador or Nezahualcóyotl to complex spatial frameworks like in Solanda or Aranya.

Networks of Streets and Paths: Usually there are three to four levels of access hierarchy. In all projects, at least parts of the street network double up as multifunctional public spaces, mainly close to individual homes.

Open space and social infrastructure: Most projects use public open spaces as an integral part of their urban layout. Especially Solanda with its archipelago of differentiated public green spaces and the interconnected green network of Aranya show successful solutions for livable neighborhoods. Furthermore, all projects combine social infrastructure with public spaces to use the scarce resource of space in the most effective manner.

Plot and block structure: The chosen size and proportion of the plots have a direct influence on the achievable long-term density and height of the buildings. The study shows that families stop extending their homes at a certain level, which causes stagnation of density. This brings us to the conclusion that the optimization of net building land and providing large individual plots above 100 m² are misleading. Small plots and additional public space create more attractive neighborhoods while achieving similar densities over time.

Adaptation to local context: The analyzed examples show a wide array of adaptations to the local context regarding social, cultural and climatic aspects. One example to point out is the strict

hierarchical layout of Villa El Salvador, where the urban grid is a direct representation of the local system of self-organization on the block and neighborhood levels.[10] Also interesting is the adaptation to topography and climate, e.g. optimizing cooling wind directions and solar protection in the Aranya project.

These and more findings and best practice examples from the analyzed case studies have been extracted as conclusions which form the basis for the proposed design patterns described in the following paragraph.

Villa El Salvador; Lima PER

Solanda; Quito ECU

Nezahualcóyotl; Mexico City MEX

Aranya; Indore IND
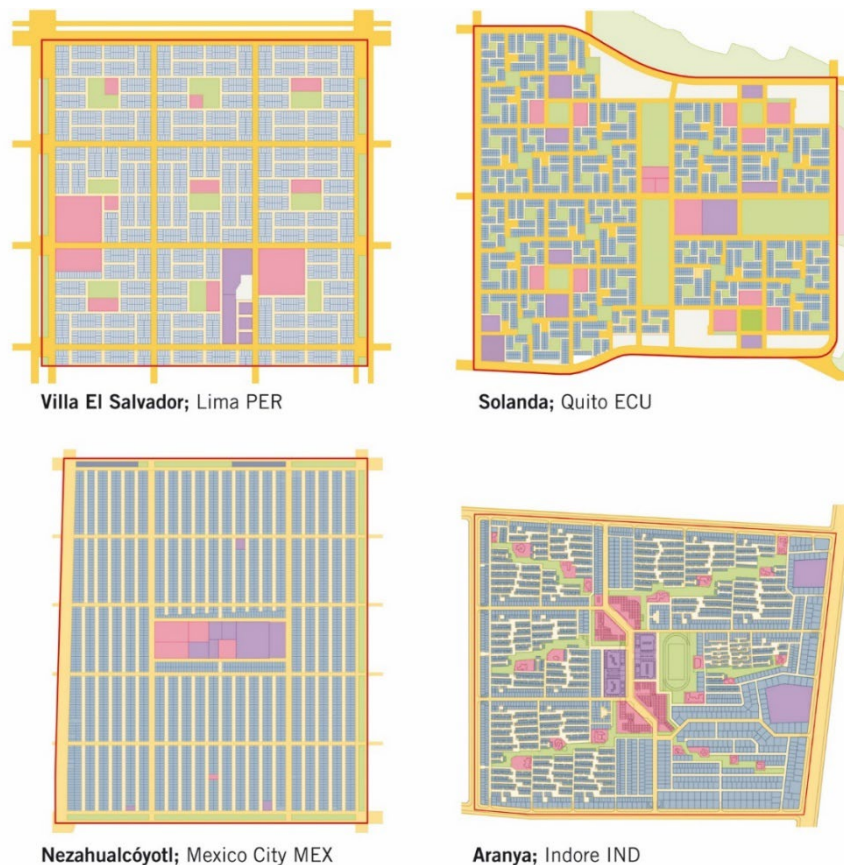
Figure 7. Comparison of urban structure in four exemplary case studies

CODING: Designing a Co-Produced City

„In essence, coding generates urban order by the generic specification of allowable and necessary components and relationships." [11] (Stephen Marshall, *Urban coding and planning*, 2011, p. 6)

Design patterns of the Incremental City

The following design patterns for co-produced neighborhoods or cities are the result of a research process in literature as well as the findings derived from the case studies combined with the professional experience from practice as an architect and urban planner. The design toolbox for the Incremental City consists of six spatial components.

1) A hierarchical structure forms the basis for any modular and scalable urban system.[12] An urban hierarchy of streets, public spaces, social infrastructure and distribution of functions provides orientation and identity.

2) The access network of streets and paths. It provides a modular structure, which can be repeated and extended to a grid or multi-layered spatial framework. Combined with access to public transport, optimized network lengths and increased walkability it forms the basis of the infrastructure grid.

3) A framework of public spaces works as a powerful tool to structure livable future neighborhoods. These public spaces are multifunctional and cater for a wide range of uses and users. Multiple uses in the same space are staggered over time to maximize the use of the rare resource of public (green) space. This framework could be extended beyond the settlement limit and may include protected areas like waterbodies or important landscape features.

4) Social infrastructure serve as gravitational centers in the urban system. Strategically located social infrastructure guides incremental growth into desired directions and works as a protector of public or ecologically important spaces. Especially within the realm of social infrastructure, certain institutions may be used to create destinations of city-wide or regional importance within new co-produced neighborhoods and therefore contribute to a more equal city.

5) The plots and block structure in which the principles of informal modernism serve as a blueprint of the urban design.[13] Moderate height and full use of the plot create the basis for a low-rise and high-density urban development model. The gradual expansion and incremental growth of the neighborhood and on individual plots are some of the most visible characteristics of the Incremental City.

6) The adaptation to the local context. All of the above-mentioned spatial components need to be adapted to topography, climate and natural environment and for example include solutions for shading, ventilation and precipitation. Finally yet importantly, the urban framework not only needs to be adapted to the social, cultural and historical context. Preferably, it should also use the specific context as a source of inspiration to create a unique livable neighborhood with a strong identity.
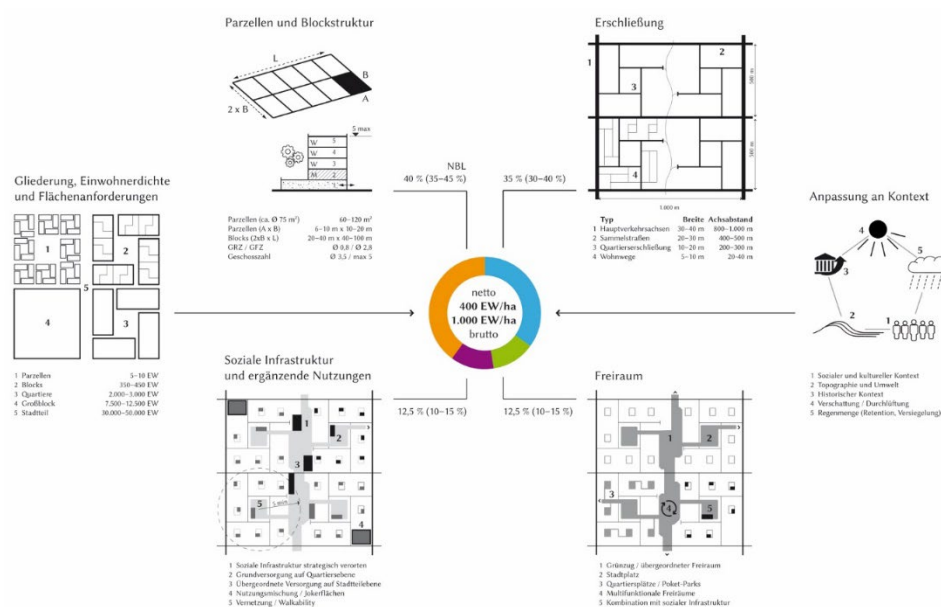
Figure 8. Urban Design Toolbox of the Incremental City

Test design with professional architects and urban planners

Based on the patterns described above, a design workshop has been conducted to test the methodology as well as the proposed design urban design guidelines. The objective for three teams of professional architects and urban planners was to work on a fictional planning task in Qaha, a small agricultural town 25 km north of Cairo. The 75-hectare site provides enough space to cater for the projected doubling of inhabitants over the next decades. Its urban design based on the Incremental City principles.

The results after two workshop days were encouraging. Not only were the participants able to provide three structurally and conceptually different solutions, but they also provided important feedback to improve the preliminary guidelines in some aspects and increase the clarity of its structure.

Test designs in urban planning master studio at KIT

These refined urban planning guidelines were used as a basis for an urban planning master studio at Karlsruhe Institute of Technology (KIT).[14] Seven teams set out to search their individual planning territory in the global south. The criteria for the country and site selection were a high population growth and urbanization rate, a moderate human development index, preferably a small or mid-sized city and a site of 50 – 75 hectares. Five teams chose locations in Africa, ranging from Cairo, Egypt; Ouagadougou, Burkina Faso and Sebeta, Ethiopia to Athi River, Kenya and Kigali in Rwanda. With Tenggarong, Borneo and Jayapura, Papua two teams chose sites in Indonesia.

Figure 9. KIT Urban Design Master Studio, Sebeta, Ethiopia. By Lukas Benz, Xiang-Ru Zhu

Figure 10. KIT Urban Design Master Studio, Athi River, Kenya. By Julia Henschel, Johanna Olfen

Findings and Intermediate Conclusions

As a result of the case studies, combined with the findings of the urban planning workshop and master studio some general findings can be formulated. General requirements for a co-produced city are a robust infrastructure framework of hierarchically organized access streets combined with a balanced network of public open spaces and social infrastructure. At the same time, the layout should provide ample space for individual construction within the blocks and plots. It should be easy to construct, modular and scalable.

The design guidelines should be communicated as an application-oriented planning tool. The complexity of these guidelines is consciously reduced to six interlocked spatial components to make the design patterns clear and easy to understand. In contrast to early critiques towards a seemingly reduced repertoire of design patterns, an interesting finding is the great variety of urban design solutions that resulted especially in the master studio in geographically, culturally and climatically very different contexts. In fact, the professional urban planners as well as the participants in the master studio mentioned, that the design toolbox provided great help and greatly accelerated the design process.

IMPLEMENTATION
Preconditions for the Co-Produced City

While developing the concept of a co-produced city a set of necessary preconditions has been identified. The following paragraph outlines five of these aspects.

1) Availability of land is one of the core issues.[15] Often there is no physical scarcity but rather historically developed concentrated ownership, which contrasts with the claimed right to the city movement and raises questions on how to provide a fair distribution of land.

2) Innovative solutions in financing are needed.[16] Apart from optimizing costs of the developed area, infrastructure networks and building structures, land banking and value capture are strategies that help authorities to provide affordable conditions. A flexible mix of savings, institutional funding and loans tailored to those in need, further enhances the circle of beneficiaries.[17]

3) Good governance is necessary to support transformation of politics, administration and legal frameworks to integrate successful informal practices into formal processes.

4) Capacity building is needed. This happens directly through education, knowledge transfer and cooperation, but also by providing open-source knowledge of basic planning and construction principles supported by new technologies like web-based solutions or smartphone applications.[18]

5) The need for innovative government frameworks that create ample space for participation, collaborative processes and self-governance.[19] Especially on the neighborhood level an active engagement of different stakeholders is necessary to maintain continuous exchange, guidance and consultation to provide long-term success.

Depending on the context, all of these issues are challenging, but not impossible to solve. Solutions to each of these sectoral issues have been documented in literature. Ultimately, it boils down to the presence or absence of political will to change.

„In current planning theory and activism, urban coding is discussed as a bottom-up approach to understanding, formalizing, and thereby manifesting sociospatial qualities of urban neighbourhoods.“[20] (Ahlert et al. *Moravia manifesto. Coding strategies for informal neighborhoods*, 2018, p. 73)

Integration of the informal into formal frameworks

First, it is necessary to accept the informal sector as an existing reality. The informal sector caters for the needs of millions in a very efficient way and should therefore not be considered as part of the problem, but rather as a part of the solution. This is not limited to the building sector alone but extends to the fields of transport, business, finance, law and others.

To create successful hybrid solutions it seems necessary to adapt existing formal frameworks to the existing informal practice, not the other way around. In concrete terms, this means simplifying formal regulations and access to formal processes while at the same time integrating informal practices in existing frameworks. For example, this principle could be applied in the sectors of planning and building regulations, registration of land ownership, transactions and finance of real estate.
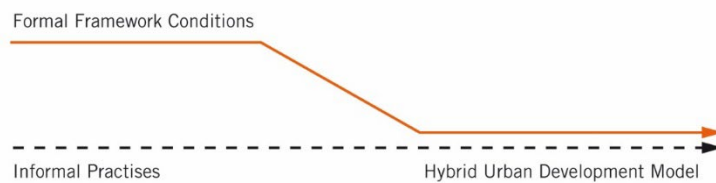
Figure 11. Adaptation of formal frameworks to hybrid urban development model

Responsibilities and Code of Conduct

Within the context of a hybrid urban development, the areas of responsibility and their interfaces need to be defined. In simple terms, it can be summarized that in the early stages of the process and in large-scale tasks, the responsibility usually lies in the formal sector and with the authorities. The later in the process and the smaller the task, the more responsibility can be assumed by future inhabitants. Depending on the context, certain concessions of all actors are necessary and the areas of responsibility should be negotiated carefully. Examples show that reasonable interfaces are located on the scale of neighborhoods, quarters or blocks and at the transition from specific urban infrastructure and definition of plot layouts to the realization of first buildings.
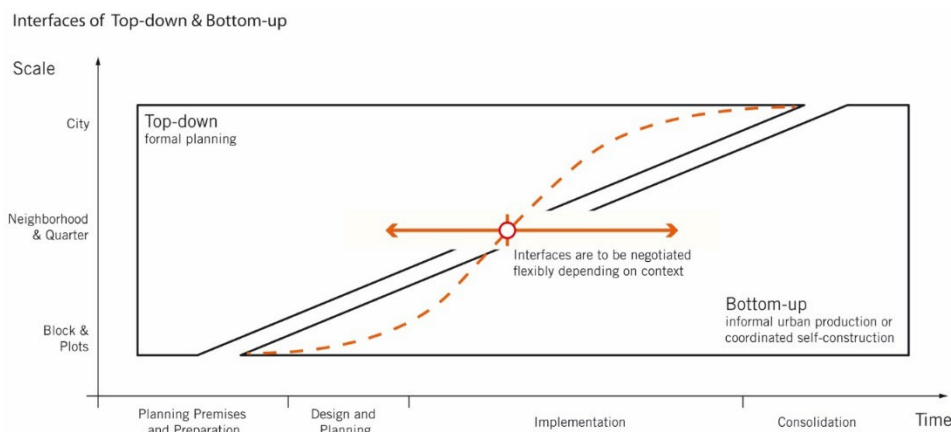
Figure 12. Sectors of responsibility and interface between top-down and bottom-up

CONCLUSION

The analyzed case studies show that planning for self-construction can create successful results in the sense of livable neighborhoods. Key features of the co-produced city are summarized in simple sets of rules. These guidelines form an effective starting point for urban planning tasks in the context of rapidly expanding cities, especially in cases with high proportions of self-built construction.

The experimental application in test designs with professional architects and urban designers demonstrates the functionality, agility and flexibility of the toolbox. Moreover, the 2021 urban planning master studio at KIT shows that the guidelines of the Incremental City can be easily understood and implemented by professionals and students alike. The wide range of urban patterns and the variety of locally adapted planning solutions developed within the urban planning studio are proof of the versatility of this concept.

These results indicate that a hybrid urban development model - described as the Incremental City - is able to combine the strengths of supportive formal planning (top-down) with the flexibility and efficiency of informal urban production (bottom-up) in co-produced cities. To achieve this combination of formal planning and informal urban production several prerequisites have to be met: First, a flexible yet robust urban plan including the expected key figures for city planning. Second, an urban code outlining the fundamental rules and obligations for future inhabitants and responsible authorities alike.

It is expected, that negotiating and following an alternative urban code is one of the most challenging aspects, partly because it also means that authorities need to accept the realities of informal building production and therefore need to adapt existing building regulations. One way to achieve this goal might be to create special development zones for coproduced neighborhoods, as it allows maintaining existing regulations in the existing and future formal parts of the city while allowing fewer restrictions and special rules in designated areas.

Yet urban planning alone is not enough. The preconditions for a successful co-produced city are manifold, where availability of land, financing, law, personnel capacities, good governance and participation could be identified as the key topics.[21]

Sectoral strategies for these issues have been documented and there are tested solutions for each of these thematic fields, yet there is a need for more in-depth work to bring them together into a combined interdisciplinary strategy. The greatest challenges lie in creating favorable framework conditions and embedding planning in an effective overall strategy.

NOTES

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[3] John Turner *Housing by people. Towards autonomy in building environments* (New York, Pantheon Books, 1977) and Horacio Caminos and Reinhard Goethert, *Urbanization primer. Project assessment, site analysis, design criteria for site and services or similar dwell-ing environments in developing areas, with a documentary collection of photographs on urbanization* (Cambridge, MA, MIT Press, 1978) and Alejandro Aravena and Andrés Iacobelli (eds.) *Elemental. Manual de vivienda incremental y diseño participativo/incremental housing and participatory design manual.* (Ostfildern, Hatje Cantz, 2016)

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[5] Ricky Burdett *The Quito Papers: Towards an Open City* (UN Habitat, NYU, Theatrum Mundi, 2016) accessed December 10, 2019, https://www.youtube.com/watch?v=B4sJzJxXmNw, Min 10:30.

[6] David Gouverneur *Planning and Design for Future Informal Settlements* (London, Routledge, 2015), 3.

[7] Shlomo Angel *Making room for a planet of cities.* (Cambridge, MA, Lincoln Institute of
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[8] David Gouverneur *Planning and Design for Future Informal Settlements* (London, Routledge, 2015), XXIV.

[9] Moritz Ahlert et al. *Moravia manifesto. Estrategias de codificación para barrios populares: coding strategies for informal neighborhoods* (Berlin, Jovis, 2018), 75.

[10] Vila El salvador: Organisation und Hierarchie

[11] Stephen Marshall (ed.) Urban coding and planning (London, Routledge, Planning, history and environment series, 2011), 6.

[12] See: Christopher Alexander et al. *A pattern language. Towns, buildings, construction.* (New York, NY, Oxford University Press, 1977)

[13] Eckhart Ribbeck, Sergio Padilla and Fatima Dahman *Die informelle Moderne - spontanes Bauen in Mexiko-Stadt* (Heidelberg, awf-Verlag, 2002), 14-15.

[14] KIT, Institute for Urban and Landscape Design, Master Studio: *Incremental City – Planen einer koproduzierten Stadt,* (Karlsruhe, KIT, 2021) accessed March 15, 2023, https://stqp.iesl.kit.edu/1156.php

[15] Mark Napier *Trading places. Accessing land in African cities* (Somerset West, African Minds for Urban LandMark, 2013), 50.

[16] Laura Sara Wainer, Billy Ndengeingoma and Sally Murray *Incremental housing, and other principles for low-cost housing*, (International Growth Centre / RHCI MIT, 2016, C-38400-RWA-1) accessed November 15, 2019, https://www.theigc.org/sites/default/files/2016/11/Wainer-et-al-2016-final-report.pdf

[17] John F.C. Turner *Uncontrolled Urban Settlements: Problems and Policies* In: International social development review No. 1 (New York, United Nations, 1968) 126.

[18] Marco Ferrario, Rakhi Mehra and Swati Janu Digital Tools for Low-Income Housing in Indian Cities. (mHS CITY LAB, in Field Actions Science reports, 2017), 54-59

[19] Mark Napier *Trading places. Accessing land in African cities* (Somerset West, African Minds for Urban LandMark, 2013), 107.

[20] Moritz Ahlert et al. *Moravia manifesto. Estrategias de codificación para barrios populares: coding strategies for informal neighborhoods* (Berlin, Jovis, 2018), 73.

[21] UN-Habitat Our City Plans - An Incremental and Participatory Toolbox for Urban Planning (Nairobi, United Nations Human Settlements Programme, 2022) accessed March 15, 2023, accessed https://ourcityplans.unhabitat.org/

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URBAN VILLAGES IN SHENZHEN: THE MEANING OF BEING NEGLECTED

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INTRODUCTION: THE IMPORTANT OF THE "EMPTY"

Chinese urbanization has been taking place at an unprecedented pace and scale. In the last four decades, the urban landscape in China has been drastically reshaped, with most land being taken, fully developed, or redeveloped. What left are those unoccupied spaces as the exception of state which provide a different scenario, potential and deserve more attention.

Borrowing Barthes' theory of semiology and notion of "empty space",[1] Bach claimed that Shenzhen's villages are "empty" in that the local power can't be adequately signified due to legal status but they remain central to the city's existence.[2] Villages used to be the center of Chinese society in the past, and now they continue to be the center around which a city is organized.

However, outsiders rarely paid attention to villages per se but rather to a few consumption nodes that sustained their daily urban life. "Passing by" is a common experience for society outside villages. In the case of Pingshan village, where this research dived into, broad boulevards, fancy shopping malls and hotels, high-rise middle-class apartments, and university campus and institutions intersected with frown-upon neighborhoods that clustered with low-income or middle-income and lowly educated people. Every working day, thousands of white-collar workers (*shangbanzu*) came out of the subway station University Town early in the morning and walked through the village along a main street before crossing a traffic road to their offices in innovation parks (formerly industrial zones) or universities. While passing by the village, they stop for breakfast and greet their acquaintances. I was also an outsider. With intensive observations at the site and encounters with residents of the villages, I tried to read the village as an comprehensive story.

Scholars have conducted an abundance of studies to understand urban villages and other migrant enclaves. In general, the spatial dimension and the social-economic dimension are two main focuses. Spatial structures, access densities, and open spaces were well studied.[3] And informality and rural migrants' lives were also well explored in ethnographic studies.[4] Some of them have attempted to integrate social and spatial characteristics. Still, more study is needed to advance our understanding of social-spatial interactions. Furthermore, as almost all studies have recognized the dichotomy of rural and urban, it is necessary to give further attention to rural cultural background as a tradition and how it still persists and influences cities today.

Based on my fieldwork from March to May 2023 and insights from existing literature, this paper explores how the urban village has been neglected and meaning of it. Further, it discusses a hybrid scenario as a possible future. Field observation was used as one main method to understand spatial characteristics and interactions among people and space. Fieldnotes were taken. Unstructured

interviews were conducted in a casual and narrative way with 18 residents covering local villagers, middle-aged migrants, and young migrants. Drawings are also used for analysis, to stimulate my encounters with residents and also to aid in the analysis of everyday practices at specific locations.

BEING NEGLECTED: NEITHER URBAN NOR RURAL SPACES

Pingshan Village, now located in the middle of the populated megacity of Shenzhen, was once in a suburban area of district Nanshan at the edge of the 1979 Shenzhen Special Economic Zone. It used to be surrounded by paddy fields, orchard trees, and mountains. Since 2001, "University Town" has become the landmark of the area, and a designated subway stop was constructed right next to the gate of the village.

Like other urban villages, Pingshan village is an example of "ignored urban space" within postreform cities.[5] In contrast to the new urban space as expansion of urban areas into suburban areas and renewed space as a result of gentrification, the ignored urban space is concentrated with low-income people, rural-to-urban migrants, and old manufacturing factories.[6] Such left-over space is often regarded as "backwards" or "behind" the progress and vision of modernization, and several reasons contributed to this neglect.

Given that there are other, preferable possibilities, the government showed little interest in areas like the villages of Shenzhen. The costs associated with relocation, compensation, and redevelopment were too high to attract developers to realize the vision of a "modern global city". In contrast, purchasing agricultural and bare land was way more affordable and hence favored, especially at the early urbanization stage.[7] Additionally, the lengthy process of negotiating the exchange of land values appeared to have been a barrier for a city that was eager to grow.

Second, the state's approach to villages is ambiguous. On the one hand, the state recognizes that urban villages played an important role in advancing urbanization: they housed millions of migrants on whom the city depends and for whom the city cannot secure citizenship.[8] On the other hand, the obvious visible disparity and shantylike physical environment compelled the state to transform these areas. As a result, many tactics have been used in the past decades, ranging from tolerating and eliminating to formalizing.[9] Villages have been tolerated to allow renting to accommodate migrating populations and are now facing issues of being formalized and regulated through physical renovation and supplementing rural, low-income people with urban citizens.

By labeling "urban village" or "*chengzhongcun*", the state and planners successfully alienated the space from its history, not to mention its particularity. It also manifested itself as an informal space, and such labeling becomes a governance tool for interventions and regulations. The 500 years of history since it was founded as a traditional village in south China that built upon family and kinship became remote and obscure. As a result, villages turned into leftover spaces in cities that is indifferent or empty to society outside.

THE PERSISTENCE OF VILLAGE TRADITIONS

Compared to classical European space, the Chinese space emphasizes "depth, enclosure and containment of the discourse".[10] This is in accordance with Lu's summary of traditional Chinese cities as "walled, intensive and compact" that has persisted in modern China despite of changes.[11] Inside village (Chinse: *cunli*), that residents often used to distinguish the village from the society outside, remained these spatial features.

The village's urbanizing process has formed layers in both space and time dimensions. From an aerial view, it contains the very dense village, which the locals refer to as the old village, and the extended village, which the locals refer to as the new village. Along history, there are layers of the past and present, which means tradition and modernity. For understanding the space quality and daily life of

the inside village, four points were selected, representing diverse interactions among different groups of people (e.g. local villager, old generation of migrant, young generation of migrant) and spaces (Figure 1).

Figure 1. Selection of four points that represent different spatial structures.

1. Inside core of the village
2. Edge of the inside core
3. Extended area in rigid pattern
4. Extended area in loose pattern

Moving inside the village core

"It's like a maze, easy to get lost". This is my initial impression, as it is for anybody who enters the village's inside core for the first time. Hundreds of possible routes can be taken.[12] It brings meaning of moving in the village, and by that strong social interactions are created and enhanced. The inside core remained the original village's residential size (1.2 hectare), containing about 200 houses. Buildings are compacted and densely arranged. The ancient southwest-northeast paths (following the topography) were interrupted and blurred during the process of house demolishing and rebuilding: informal and incremental expansion of housing footprint claimed the common pedestrian spaces. Alleys today are indeed spaces in-between the built, some of which are narrow for one person to pass while others are wide and/or semi- enclosed.

These in-between spaces are where people of different backgrounds encounter. Uncle Zhang,[13] in his early 50s, lives with his wife and daughter in a one-story old house made of bricks and covered in a decaying lime plaster. His job is to collect garbage every early morning between 3 and 6 am and every evening between 6 and 11pm. At his spare time, he enjoys strolling around the village, visiting neighbor's homes, the only little park in front of ancestor halls etc. One of his favorite spots is a corner just 10 meters from his house, where he can gossip about what's going on in the villagewith his neighbor who is a Anhui laoxiang (people of the same micro geographic origin) (Figure 2).

The hundreds of routes are not only connectors between destinations but also collectors. As a sign to slow down passengers and welcome their stop-by, furniture like plastic stools and wood chairs (probably recycled from restaurants or others) were placed alongside their private belongings like a shoes shelf, broom, bikes and hanging cloths. In a morning around 10am, Uncle Zhang just grabbed a kid stool and sat in a shadow, complaining with his neighbor Brother Du and another Laoxiang. Other neighbors occasionally join the talk. During the day, many activities were stimulated in this limited but diverse settings, including active socializing such as meeting neighbors and friends, passive listening while doing their own things, and parenting.
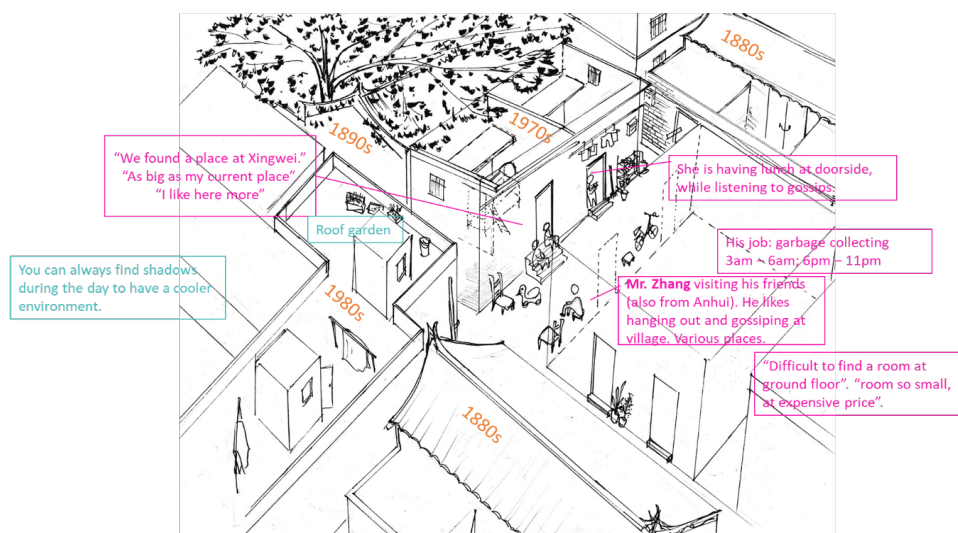
Figure 2. Point 1: favorite corner of Uncle Zhang inside the village core

Reclaiming the edge of inside core

Since late 1990s, the edge of the village core (between the inside core and extended area) has been defined as a wide standard pavement. The only exception is the square in front of the two ancestral halls (*gongci* [14]). These ancestral halls, which had been demolished and rebuilt several times at the same location, marked the front boundary of the old village.

"Bright moonlight, shining on the ground (*ditang*).

Little baby, be good and go to bed.

Tomorrow morning Mum must hurry for rice transplanting.

Grandfather goes up the hill for cow watching…"

As in this popular Cantonese lullaby *Moonlight* (*Yueguangguang*), the pavement was indeed an open ground called *ditang* in front of the ancestral halls and houses. It was basically a flattened earth ground that was used for drying grains in the sun at harvest season, and also for leisure activities in the evening when moonlight illuminated the ground. It also hosted ritual events like weddings and national holiday events.

For Granny Zhan,[15] a local villager who married into this village in the late 1950s, the pavement remained the open ground in front of her cottage (Figure 3). She reclaimed it by partially enclosing the front space with recycled portable temporary fences and continued to use it for her leisure. Almost every day, after offering incense to divine beings in the early morning, she sits outside facing outwards, soaking up some sun while waiting for her neighbours (a middle-aged single lady and other old villagers) to join her and have small chats.

Every morning, inside her house, **Ms. Zhan** (83) offers incense to divine beings, including ancestors, *Guanyin*, heavenly god etc.

"I like sitting in front of my house" "it's cozy, with breezes (through leaves) in a shadow"

People watching

Her neighbours come to join her
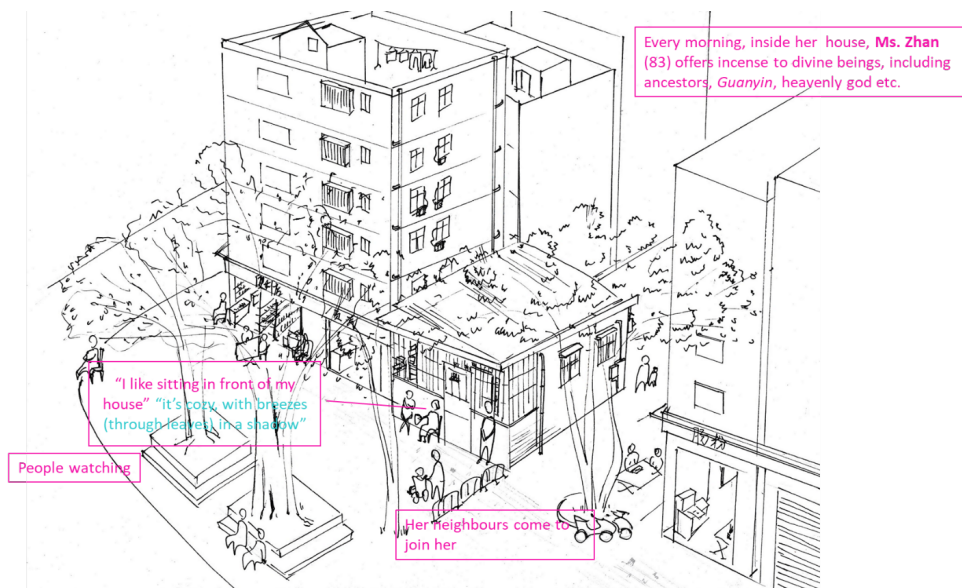
Figure 3. Point 2: Granny Zhan's house and its front space

Extended area: on and off

The new village is the extended residential area of the core. To the southeast side of the old village is a handshake building model (literally shaking hands from within their rooms) with a rigid layout (Figure 4). The informal extension of balconies and windows reduced the distance between buildings significantly. It is a standard design by the village collective: buildings are 7-8 floors (some with one extra floor added), and each floor contains 4 households in two types (one is a studio with kitchen and toilet of about 20 square meters, and the other has one living room, one bedroom, kitchen, and toilet for 40 square meters).

Apart from being known for the handshaking narrowness, it is more about the dynamic of on and off,[16] which opens and closes people's connections to other buildings and village environment. Xiao Mo,[17] who was born in Guangxi province in the early 1990s, lived in a studio on the 3rd floor, benefiting from its proximity to her office. When she opened her windows and curtains, she would be immediately engulfed in an oily, noisy, smoky, and dirty environment. With "on", all private rooms become one space. When she closed her windows and curtains, she could enter another world created by herself, private and clean.

Flower shop. The plant plots filled the indoor and outdoor, creating a intimate environment.

Ms. Mo lived here. She left in 2022, since she didn't like her illy behaviour neighbour and she couldn't bear the oily smell from downstairs cooking

She commuted by walking between her company and rented place. She spent most of time indoor.
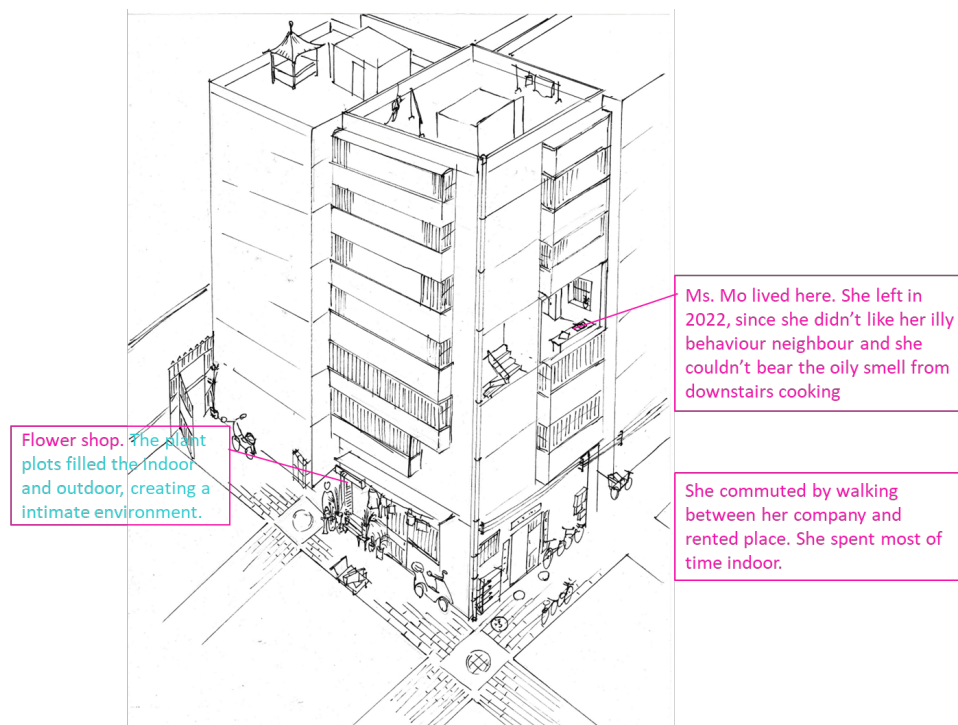
Figure 4. Point 3: Xiao Mo's apartment at extended area

Extended area: privatizing spaces

The extended area to the northeast of the old village has a relatively loose built layout, which is partially influenced by steep slopes. The dwellings are self-built houses owned by villagers on their homestead. In comparison to point 3, these units share bigger distances in between. Each building has its own yard, terrace, or balcony with a view and differs from each other. Some yards are fully enclosed, while others are partially enclosed and interspersed with pathways.

The spacious room with an open yard let Sister Hua decide to take the ground floor of a four-story house constructed on a slope (Figure 5). Sister Hua,[18] who was born in Hunan Province in the mid-1980s, moved to Pingshan village about 8 years ago for her children's education.[19] She is both a housewife and an entrepreneur. Every day she drove her two children to and from school, making meals and caring for them. Unlike other young couples who usually receive grandparental assistance,[20] she prefers to raise children herself using modern ideas. At the same time, she operates a flower store, which she developed at covid time to improve her down mood after her hotel business failed.

The building block has only 4 households, each with one floor. While other households use the access from the basement, she privatized the semi-open yard and stair pathways and claimed ownership. This area now became a playground for children, an experimental plot for growing vegetables and plants, and the setting for her flower business. "Though I know it's not my own house, it feels like home. Living here is comfortable, similar to my hometown in the countryside", she remarked.
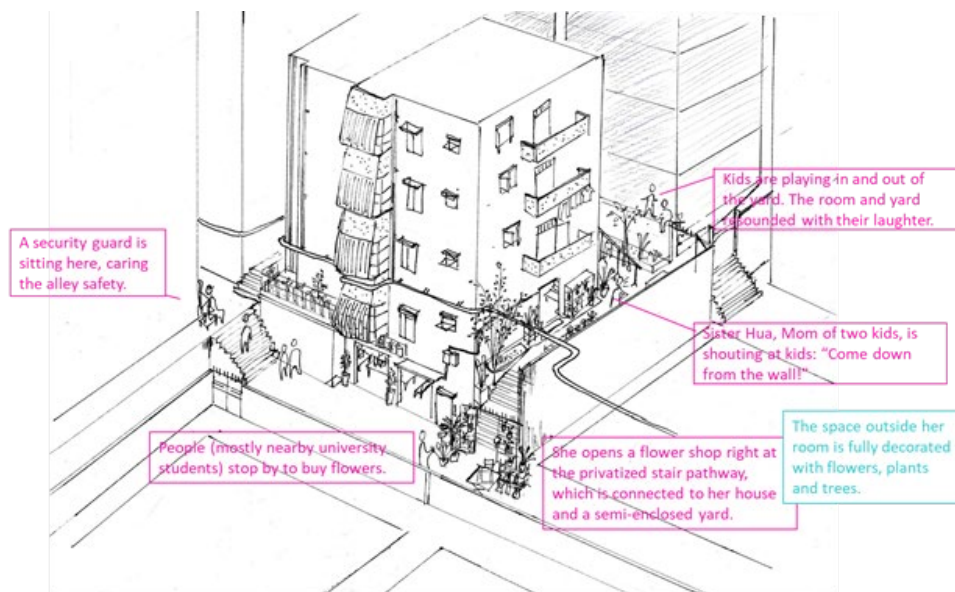
Figure 5. Points 4:Sister Hua's privatized yard and stair pathway

DISCUSSIONS OVER TRADITIONS AND MODERNITY

Shenzhen's villages have been part of the city's urbanization trajectory.[21] As a whole, they connect the city's past, history, and possible future. Their "feudal" traditions, which have been criticized by authorities and urban citizens, remain and coexist with modern infrastructure and regulations. In a fast changing society, Shenzhen's villages demonstrated the tradition as "what we make and sustain everyday and everywhere through the occasionally contemptuous act of living".[22]

Undeniably, the tradition has been declining as local villagers became landlords and moved to high-rise middle-class apartments. The feeling of "being lost" was revealed by villagers[23] in terms of land loss, loss of intimate personal relationships that were bonded by kinship (Chinese: *renqing*), and loss of natural elements. Pingshan village, like many other traditional villages in south China, is a lineage-based settlement established cosmologically hundreds of years ago. Its orientation followed the topography and took the mountains and rivers as landscape context. Being interrupted by large footprint infrastructures like campus buildings, today's spatial characters are no longer visible. Even the traditional *fengshui* tactics are confined to names and memories.

Every villager recalls an ancient well and a thousand-year-old cypress in the village, where people used the water for drinking and children for bathing. Aside from these practical uses, folklore allowed people to preserve it until the 1980s when industrialization caused severe pollution. "That cypress tree is goodness from a thousand years ago. That's why the water was always crystal clear. It was said that if you are sick, drinking tree bark water can help recovering", I was told by a local villager who works at the village community.

Still, you can find cultural imprints like ornamental *paifang*, ancestral halls, *Guanyin* temple. The village name written on the *paifang* memorize the settlements' relationship with the topography and blessing at local; and the inscribe tablet and couplet on the back remembered the lineage and their ancestors. Rural migrants arrived and through their daily lives they have been reforming their habitus[24] on top of these imprints and remaking traditions.

In addition, the land, once rural, is still collectively owned by villagers, as a legacy from Mao's time. Villagers have well defined the house plot, but left other spaces such as *ditang,* semi-open yard, and pathways loosely defined or ambiguous. The spatial attributes above enabled villagers and migrants

continue to common or occupy these spaces temporarily or permanently. Thus, the village remained being infused with rural sense of living and using spaces.

CONCLUSION

Urban villages as ignored urban space tell a comprehensive story. They are neither a resistance to modernization nor subordinance to urban life. The reluctance of state, either with no investment interest or ambiguous in measurements, produced such leftover spaces.

By analyzing particular pointes based on layers (spatial and temporal), diverse daily practices that in relation and interact with space were unraveled. Travelling from inside core to the extended area, the old village to the new village, the past to present, the activities change from collective to private. The establishment of new village can be seen a protection of the old core, allowing the tradition resurrect.

The rural culture inherited from the village's past is a tradition that has been carried on through people using the space. Despite changes in forms or designated formal functions such as pavement, traditional practices remain as a habitus. Villagers and rural migrants together link the past with the present, making urban villages an entanglement of urban essence.

NOTES

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[2] Jonathan Bach, ""They Come In Peasants And Leave Citizens ": Urban Villages and the Making of Shenzhen, China," *Cultural Anthropology* 25, no. 3 (2010): 421–58.

[3] Matthijs Van Oostrum, "Access, Density and Mix of Informal Settlement: Comparing Urban Villages in China and India," *Cities* 117 (October 1, 2021): 103334, https://doi.org/10.1016/J.CITIES.2021.103334; Xiaoli Liu and Wei Liang, "No Zhejiangcun: Social and Spatial Implications of Informal Urbanization on the Periphery of Beijing," *Cities* 14, no. 2 (1997): 95–108, https://doi.org/https://doi.org/10.1016/S0264-2751(96)00047-9.

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[6] Zhang, *Urban Development Patterns in China*.

[7] Yan Song, Yves Zenou, and Chnegri Ding, "The Role of China's Urbanizing Villages in Housing Rural Migrants," in *Urbanization in China: Critical Issues in an Era of Rapid Growth*, ed. Yan Song and Chengri Ding (Toronto: Lincoln Institute of Land Policy, 2007), 145–68.

[8] Sainan Lin and Piper Gaubatz, "Socio-Spatial Segregation in China and Migrants' Everyday Life Experiences: The Case of Wenzhou," *Urban Geography* 38, no. 7 (August 9, 2016): 1019–38,
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[9] Xukun Zhang, "Informality and Rapid Urban Transformation: A Case Study of Regulating Urban Villages in Shenzhen," *GeoJournal* 88, no. 4 (August 1, 2023): 4425–39,
https://doi.org/10.1007/S10708-023-10874-X/METRICS.

[10] Jianfei Zhu, "A Celestial Battlefield: The Forbidden City and Beijing in Late Imperial China," *AA Files*, no. 28 (1994): 48–60, https://www.jstor.org/stable/pdf/29543922.

[11] Duanfang Lu, *Remaking Chinese Urban Form:Modernity, Scarcity and Space 1949-2005* (Oxfordshire, New York: Routledge, 2006).

[12] Matthijs Van Oostrum, "Appropriating Public Space: Transformations of Public Life and Loose Parts in Urban Villages," *Journal of Urbanism: International Research on Placemaking and Urban Sustainability* 15, no. 1 (2021): 84–105, https://doi.org/10.1080/17549175.2021.1886973.

[13] Uncle Zhang is pseudonym for privacy. Interviews with him was taken at alleys and a consent form was signed.

[14] *Gongci* 公祠 is different from *citang* 祠堂, which is the temple built for a family branch. At the studied village, people refer to their temple of the origin or common ancestor as *da citang* (big ancestral hall).

[15] Granny Zhan is pseudonym for privacy. Interviews with her was taken at the open ground in front of her house. A consent form was signed.

[16] Momoyo Kaijima, Junzo Kurodo, and Yoshiharu Tsukamoto, *Made in Tokyo* (Kajima Institute, 2001).

[17] Xiao Mo is pseudonym for privacy. Interviews with her was taken at the public hall of her current apartment. A consent form was signed.

[18] Hua is pseudonym for privacy. Interviews with her was taken at her house. A consent form was signed.

[19] Pingshan village is one of the few urban villages in Nanshan district that offer quotas for migrants' children for public schooling with low or attainable entry requirements. The middle school education was only made available two years ago as an extension of its primary education. For her case, it was a 1-year tax payment plus residency registration at local neighbourhood, whereas homeownership is necessary for most public schools.

[20] Elisabeth J. Croll, "The Intergenerational Contract in the Changing Asian Family," *Oxford Development Studies* 34, no. 4 (December 2010): 473–91, https://doi.org/10.1080/13600810601045833.

[21] Bach, ""They Come In Peasants And Leave Citizens ": Urban Villages and the Making of Shenzhen, China."

[22] Nezar AlSayyad, "The End of Tradition, or the Tradition of Endings?," in *The End of Tradition?* (London: Routledge, 2004), 1–28.

[23] Interviews with villagers were taken in casual talks during house visits or co-working at the village community office. Consent forms were signed.

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EXPLORING THE LOCAL DEVELOPMENT AND LIVELINESS OF A PLACE THROUGH HERITAGE PERSPECTIVE IRANIAN TRADITIONAL BAZAARS AS HERITAGE; THE TEHRAN GRAND BAZAAR

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INTRODUCTION

The United Nations (UN) estimates that by 2050, 68% of the world's population expected to reside in urban areas.[1] This suggests that related challenges such as climate change, demographic growth, and social structure disorder will become growingly concentrated in urban areas. As a result, cities have crucial role in the sustainability of our future.[2] Heritage can play a significant role in achieving local development and livability of a city during this period of increasing urbanization, as recognized by international organizations such as the UN, the European Union (EU), the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the International Council on Monuments and Sites (ICOMOS). They emphasize the importance of heritage in achieving sustainability in the local area.[3]

Eradication of a place's cultural heritage and changes in identity and culture, which result from the destruction of collective memories and a sense of place, could lead to disorder in the social structure, a rupture in the relationship between individuals and their place, and, ultimately, the death and darkness of a city. From a heritage perspective, a vibrant and dynamic city can be where historical experiences and cultural accumulations can find a place to be expressed and where a sense of place emerges from the interaction of citizens with urban spaces. Therefore, it appears that heritage has the potential to contribute to the formation of a shared local identity, connecting people and place through history. Moreover, social life and livability in the city are made possible by citizens' voluntary and satisfactory presence in urban spaces, and the continuation of people's presence in these areas is ensured by meeting their social, political, cultural, and worthiness needs.

Following the question of how heritage can enhance the livability of a region, this essay will examine the value of heritage as a solution to optimize the livability of places where urban life keeps its flow and vitality. This essay explores the *traditional bazaar* as an example that is considered as cultural heritage. Bazaar is one of the most significant historical urban spaces which has influential role in preserving the vitality of Iranian cities. Through the first step of this research, we will study the main characteristics of bazaars, then at the second part we will study these characteristics within the framework of the concepts that define the viability of a place.

CHARACTERISTICS OF THE BAZAAR

Along with preserving traditional and local culture, the Iranian bazaars have been regarded as the most important communication axis in Iranian cities. Typically, bazaars have formed along the city's most important roads, with all the main roads, gates, and neighborhoods leading directly or indirectly to the bazaar. As the city's spine, the Iranian bazaar has been the main factor in shaping the surrounding areas. The Bazaars have always served multiple purposes; they were not only a place to meet the needs of the people but also played an essential role in their social, cultural, political, and religious life.
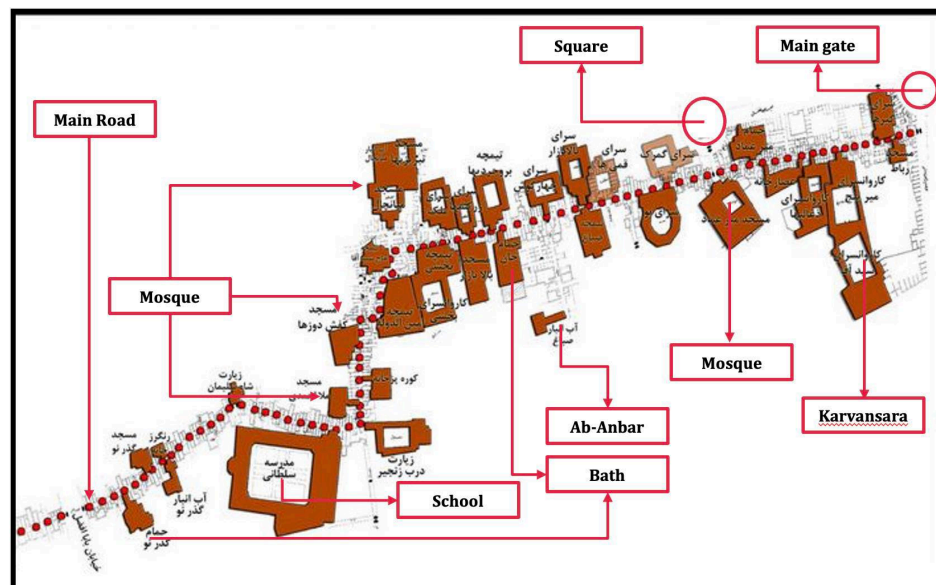
Figure 1. Connection of urban spaces in Bazaar, GanjaliKhan traditional bazaar in Kerman by Homsa Architectural Group

The traditional bazaars often had a linear growth such as Tehran, Isfahan, Shiraz, and Bushehr. Nonetheless, at the same time, they have equipped themselves with linear routes by occupying the surrounding urban spaces and transforming them into functional areas. Bazaars have created complete and interconnected urban communities by incorporating spaces such as bathrooms, coffeehouses, docks, workshops, schools, mosques as religious centers, *Zurkhaneh* as a place for sports, and an *Ab-Anbar* as a place to store water. Consequently, the bazaar has created a spatial link between three significant religious, economic, and political centers.

Economical role

The bazaars emerged as a special trading environment to concentrate supply and demand, save the buyer's time, and prevent inflation, high prices, and transactional confusion. Historically, bazaars' permanent functions have been wholesale or retail economic exchanges to meet the needs of the city's residents and surrounding communities.

Socio-religious role

The bazaar has also been the site of intellectual conflict in Iran's history. Due to the predominance of face-to-face and direct communication, the bazaar was typically regarded as the most important physical channel and platform for disseminating information and news alongside goods and currency. Due to the structure of the bazaars, which were built along the main road and terminated at the city's main gates, information and news from all religious centers such as mosque, educational centers,

administrative centers, economic centers, and outside the city first entered the bazaar and were then disseminated to all parts of the city by the people. Publishers called *Jarchi's* once disseminated vital information so that everyone in the city knew the news within less than a day. People would also pay publishers to spread the word when they had bad news to share, such as the losing a child, the dissolution of a business, or the theft of personal property, among others.

The city's main bazaar would be decorated, and festivities would be held whenever a notable person, king, or group of dignitaries entered the city. The Nowruz celebration was one of the annual events that helped the bazaars prosperity[4]. Bazaar coffee shops served a similar social purpose, and public baths were a popular gathering spot for both men and women. Other areas of the bazaar served as venues for various forms of entertainment, games, competitions, contests, and recreational activities, such as the *Zurkhaneh*.

Figure 2. Religious decoration for the month of Moharram

Political role

The bazaar was the single most crucial factor in shaping the relationship between the government and the people. As Bazaar had a close relationship with the people as customers. However, the organization's commercial activities made it dependent on the government. By remaining closed on days of protest or confrontation with the government, the bazaar has historically served as a social bastion for the people. This caused that the authorities would send the bodies of their opponents to the bazaar after they had been murdered to instill fear in the population. In addition, some shaved-headed criminals and wealthy merchants were brought to the bazaar and paraded through the area atop donkeys as a form of public punishment.

THE BAZAAR AND LIVABILITY

A city must be dynamic and well-balanced to survive and endure, regardless of its primary objective. Populations are key indicators of the livability of urban areas, and the participation of residents is necessary for an urban area to be vibrant and alive. It is paramount to discuss the significance of urban residents' experiences in the context of heritage in the first step to answer the key question: What connects people to the place they use for various activities? Consequently, this essay focuses on the concepts used to underpin historical urban spaces that induce livability, evoke the viewer's memory of past events, and create a distinct identity. People's experiences are defined as reactions and a "sense of

place" in specific places and times. According to numerous studies, people's emotions are reflected in the places they frequent and enjoy. Some places may feel familiar, and familiarity creates a sense of place; even if we have never been there before, a place may "feel familiar by reminding us" of a place we have been before, "a memory."

In this regard, Emery[5] examines the interrelationships of memory, history, and belonging. This is why numerous researchers emphasize the importance of the "memory of the bazaar" in forming a sense of belonging to a place. This is the most important characteristic of bazaars that when you visit the bazaar in Isfahan, you are reminded of the bazaar in Kashan, and when you visit the bazaar in Tabriz, you are reminded of the bazaar in Yazd. This is because the structure of bazaars is the same across the country, although cultural and climatic factors have influenced each bazaar's architectural style, materials, and symbols. In this regard, memories of the bazaar have significantly impacted fostering a "sense of belonging" in the bazaar's location.

Memory

According to the definitions of numerous scholars, such as Emery, "moving, communicating, and engaging with human and non-human actors embed memory and meaning into the surroundings and anchor people in place.[6]" Similarly, Lynch believes that the pleasure of direct perception is more significant because meaningful and perceptible places are the ideal anchor for personal memories, emotions, and place values. Bazaars are effective memory regenerators because there is a distinct pleasure in experiencing a bazaar, such as the sense of the effective play of light, touches, smells, and the sound of making coppers, colors, and shapes. Moreover, if a memorable place in a city has distinctive physical characteristics, landmark buildings, or different spatial qualities, the physical body and space will make the events more memorable. Thus, memory in a location such as a bazaar with buildings and semantic indicators, the shape and elements defining the space of the bazaar, architectural style, and symbols will be easier to recall, and the memory formed in the mind will be more stable.
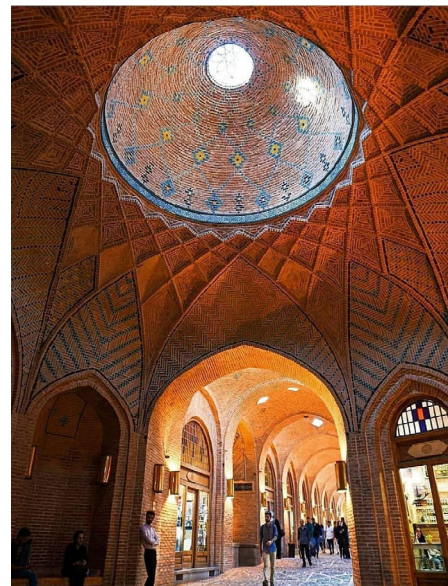
Figure 3. Kashan traditional bazaar by Hajar Faraz   Figure 4. Khan traditional bazaar, Yazd

Identity of Place

Various scholars, such as Norberg-Schulz, believe that a place's identity is defined by the perception that it encourages individuals to express themselves. Through the formation of shared recollections, the bazaar's identity fosters a sense of community among its inhabitants. In fact, it is through the identity of a place that a person feels a sense of belonging, becomes interested in exploring the space, and a place comes to life. Consequently, it would be crucial to preserve urban life by preserving places with individual character. Lynch extends the issue of identity to "events" in his book "A Theory of good city form" and states not only can places create or strengthen identity, but also events can have this effect. The aforementioned social events of the bazaar demonstrate that the bazaar plays a significant role in establishing the identity of a place through various events. Ritual ceremonies and events have a close relationship with Bazaar and mutually perpetuate one another. Numerous bazaars have sprung up and formed around a central ritual event held in a location that enhances the ceremony's splendor. It serves as an incentive to encourage more people to attend the ceremony. During the pre-Islamic era, the Mach bazaar in the historical region of Iran was held twice a year for one day each, and both were religious holidays. Some events of traditional bazaars, such as the Moharram ceremony of the Tabriz Bazaar, have been designated as part of the nation's cultural heritage.

Figure 5. Moharram mourning ceremony, Tabriz traditional bazaar by Rasanews

Sense of place

According to Lynch, places with identity strengthen a sense of place. As the sense of place plays a decisive role in sustaining human presence in a place, it is essential to balance the relationship between people and the place, better exploitation of the place, and user satisfaction. Culture and memory play a significant role in the reception of this sense. People associate bazaars with cultural characteristics, so bazaars' activities, events, and internal factors can stimulate human experience and evoke cultural concepts and meanings.

Culture

To understand the identity of bazaars, they must be studied from a cultural standpoint, exploring how people construct and represent memory. In addition to its physical components, a bazaar contains meanings that people interpret based on their roles, expectations, and motivations, among other factors. McDowell asserts that culture is indispensable to understanding the connections between place, memory, and identity[7]. Cultural maintenance is one of the most important aspects of a place's

identity; therefore, preserving heritage as a vital component of culture would result in maintaining the place's identity.

Due to the structure of bazaars and the arrangement of shops facing each other, greater communication and intimacy were fostered among the bazaar's inhabitants and users. The structure of the bazaars necessitates walking through the bazaars on foot that allowed people to meet colleagues, neighbors, and customers and exchange warm greetings. In modern shopping centers, however, the use of elevators and cars, as well as the vastness of the market environment, creates independent islands that discourage social interaction. Consequently, its body structure also influences the behavior and culture of its users. Therefore, Bazaar has a reciprocal relationship with the culture and identity of the people, which has also influenced the bazaar's unique shape.

Figure 6. Tehran Grand Bazaar, shops facing each other and walking through on foot by Apochi.com
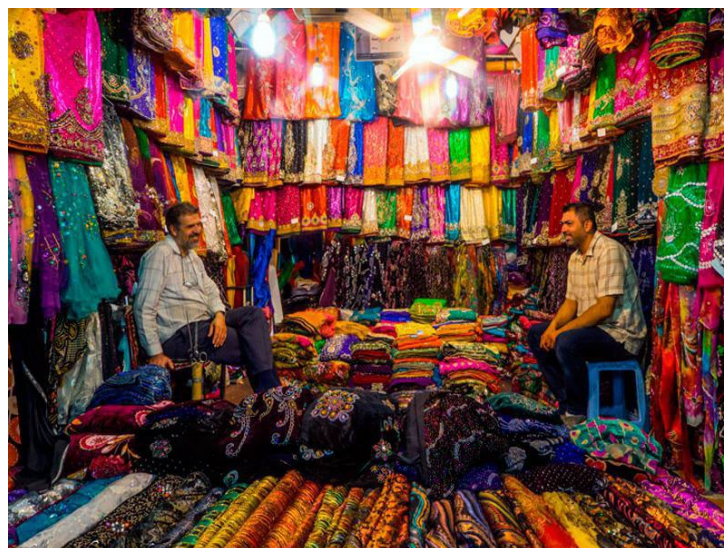
Figure 7. Interaction between neighbors in traditional bazaars by Irandoostan.com

Bazaars are interconnected with their users' culture, memory, and identity and are replete with "physical characteristics" that shape spatial materiality. Consequently, a bazaar as an urban space that creates appropriate cultural platforms per the identity and values of the society and provides appropriate conditions for the safe presence of people by preserving their memories indicates a city's vitality, balance, and dynamism. This study demonstrates the significance of culture and memory in

shaping place identity in Bazaars and answers the question, "How bazaar as a heritage connects people to the place?"

TEHRAN GRAND BAZAAR

The old district of Tehran has multifaceted development potential due to its rich historical heritage. The significance of Tehran's District 12 lies in that 27% of the area is older than 400 years, and 73% of the fabric is older than 200. District 12 of Tehran encompasses more than three-quarters of *Tehran-e-Naseri* (the historical center of Tehran), with 1011 hectares (2.9% of Tehran's total area). This area contains significant physical remnants of the Safavi and Qajar dynasties of Tehran, which are part of the "cultural wealth" collection of present and future generations to explain the historical identity of Tehran. The Tehran Grand Bazaar, a maze of corridors and alleys with endless rows of shops, is situated at the heart of this cultural wealth. This bazaar was registered as a national heritage site on October 24, 1977 (registration number 1540). The Safavi dynasty constructed the original structure of the bazaar between 340 and 391 A.H. The Tehran Grand Bazaar remains one of the city's and country's most important commercial hubs. Official statistics are listed below to support our claim that the Tehran Grand Bazaar is important to the city's and country's continued livability:

- More than 80% of the Grand Bazaar's commercial, administrative-government, workshop, and warehouse functions play a transregional role. Consequently, these three metropolitan functions are evident in the bazaar district.
- A daily draw of more than one million visitors.
- More than 50% of cultural-religious functions, tourism, and hospitality created close to and as a result of the bazaar have a transregional function.
- More than one-fifth of Tehran's commercial units and workshops are located in the vicinity of the Grand Bazaar.
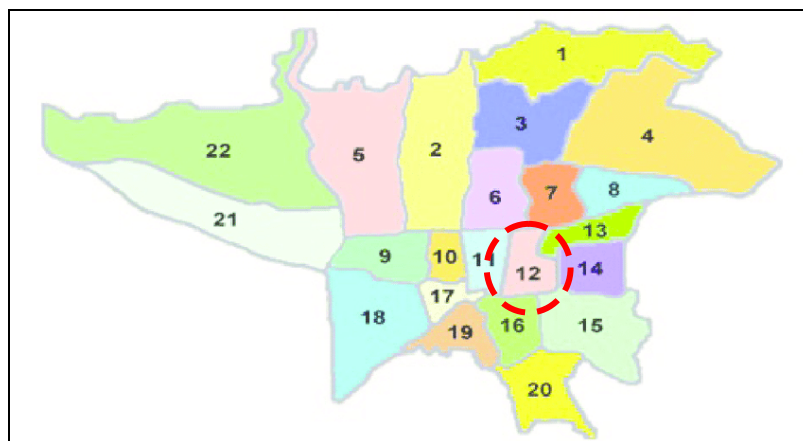
Figure 8. Tehran District 12 location, an old area of Tehran

As part of a historic place with heritage, the Tehran Grand Bazaar must be continuously preserved in terms of buildings, activities, and its elements, even though it will be severely damaged and non-specialized renovated. Proper use of the space is considered by "refining the functions and removing disturbing and inappropriate uses" and making forward-thinking decisions in guiding and monitoring development to preserve the structural integrity and distinctive appearance of the Tehran Grand Bazaar as a city's historical landmark.
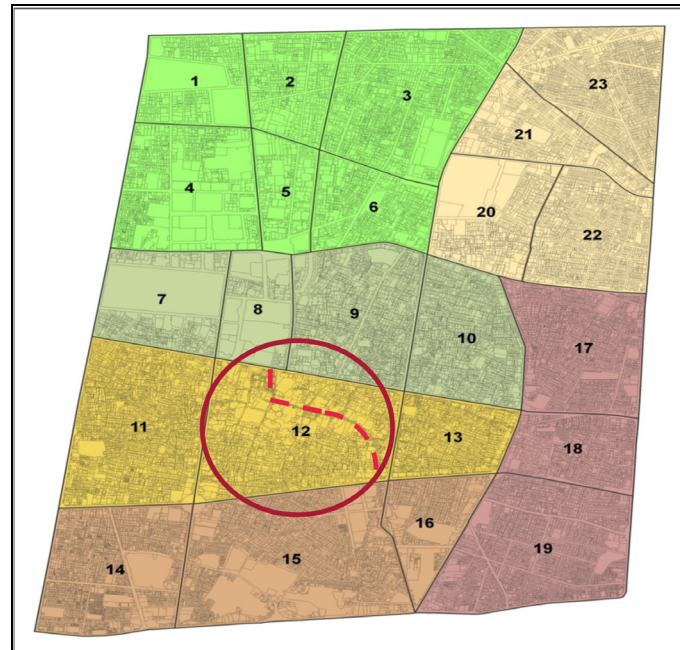
Figure 9. Tehran Grand Bazaar in District 12

METHODOLOGY

This study employs qualitative methods to determine the relationship between heritage and livability (Heritage has the power to reform and change the lives of people and places). In addition, it explores understanding and reports on people's experiences inductively. The study leans heavily toward a phenomenological or interpretative perspective, in which we construct an idea by observing the outside world. This section contains a historical investigation involving document analysis and oral history.

CONCLUSION

The paper analyzed the relationship between memory, culture, and place identity, as well as the impact of the location on historical events, by employing two discernible correlative features, tangible and intangible. It proclaims the heritage, which is acknowledged through memories and clarified through various events that preserve the identity and spirit of the place. This project's outcomes highlighted the potential contribution of heritage to social and cultural sustainability, linking heritage and livability through the participation of individuals. Heritage could be a new horizon in local growth and could separate the city from its material forms; we would then have a dynamic, vibrant city that preserves its genuine identity and culture, thereby becoming a legacy for future generations. Exploring a place's local development and liveliness from a heritage perspective is, in conclusion, a crucial means of taking pride in the community's rich cultural heritage.

The Iranian traditional bazaar perfectly illustrates the significant role that heritage plays in preserving identity and culture, attracting tourists, and boosting the local economy. Bazaar as a heritage and its way of social, economic, and political exchanges and interactions, creating suitable cultural platforms according to the identity and values of the society, creating suitable conditions for the safe presence of people, and preserving a sense of belonging and memories, are indicators of the dynamism, balance, and vitality of a city.

NOTES

[1] United Nations. Available online: https://www.un.org/development/desa/en/news/population/2018-revisionof-world-urbanization-prospects.html (accessed on 15 October 2019)

[2] Stefania De Medici, Pasquale De Toro, and Francesca Nocca. 2020. "Cultural Heritage and Sustainable Development: Impact Assessment of Two Adaptive Reuse Projects in Siracusa, Sicily" Sustainability 12, no. 1: 311. https://doi.org/10.3390/su12010311

[3] UNESCO. Recommendation on the Historic Urban Landscape; UNESCO World Heritage Centre: Paris, France, 2011; Jyoti Hosagrahar, Jeffrey Soule, Luigi Fusco Girard, and Andrew Potts. Cultural Heritage, the UN Sustainable Development Goals, and the New Urban Agenda. ICOMOS: Paris, France, 2016; Available online: http://www.usicomos. org/wp-content/uploads/2016/05/Final-Concept-Note.pdf (accessed on 15 October 2019); Andrew Potts. The Position of Cultural Heritage in the New Urban Agenda A Preliminary Analysis Prepared for ICOMOS; ICOMOS: Charenton-le-Pont, France, 2016.

[4] Hossein Soltanzadeh,"بازارهای ایرانی" [Iranian bazaars], (Tehran: Cultural research center, 2007:4), 91.

[5] Jay Emery. "Belonging, memory and history in the north Nottinghamshire coalfield." *Journal of Historical Geography* 59 (2018): 77-89

[6] Jay Emery, "*Belonging, memory and history in the north Nottinghamshire coalfield,*" Journal of Historical Geography 59 (2018):79

[7] Sara McDowell, "*Heritage, memory and identity*.", (Hampshire: The Ashgate research companion to heritage and identity, 2016), 37-53

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COLLABORATION IN PUBLIC SPACE MANAGEMENT: CONDITIONS, OPPORTUNITIES, RISKS

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INTRODUCTION

To what extent and under what conditions can citizen involvement in public space management build more livable cities? That is the central question at the base of the present contribution, rooted in the more general assumption that some forms of collaboration in public space management can nurture a dimension of livability, provided certain preconditions are guaranteed. To reflect on that, the paper reasons around a series of Milanese cases I had the opportunity to study and actively promote, having played a role in the public administration that developed them. So, the research methodology is based on a self-reflective practice,[1] reasoning ex-post on urban transformations' design and management practices. The paper, first, illustrates two premises, the growing role of collaboration in making cities livable and the fundamental role of public space; secondly, reflects on how a different way of managing public space (maintenance, active caring, animation) is consolidating; then focuses on *Piazze Aperte,*[2] Milanese cases of collaboration in the care of public space, concluding with some lesson learned.

THE ROLE OF COLLABORATION IN MAKING CITIES LIVABLE

Answering to what makes a city livable is a difficult task. Cultural, social, historical, and environmental variables suggest different responses. What makes a city livable for a young student is not the same as what makes a city livable for an older adult or a woman with children. There is a level of subjectivity in the concept of livability that cannot be defined in absolute terms and measured. However, indexes - assessing livability based on indicators that classify the levels of, e.g., political-economic stability, urban security, health and education services, cultural facilities, hygienic and ecological qualities, and efficient infrastructure stability[3] - have become widespread. Cities are compared, but the specificities of the contexts, and the needs of the inhabitants, disaggregated by social profiles or by more discrete urban areas, elude such comprehensive assessments. These livability indexes provide images of cities as a whole, more helpful in guiding market choices than defining the city livability. Ultimately, anyway, a livable city is a "just" city,[4] as Fainstein states, able to provide opportunities for employment, and social and cultural growth, to reduce disparities and uneven distribution of resources.[5]

A just city, moreover, ensures access for all. That means that it should be sufficiently diverse to be inclusive and meet every citizen's needs starting with the most fragile, like children, the elderly, women, and people with disabilities. Again, the inclusiveness concept has a wide range of meanings.[6]

By that, here, inclusiveness is meant as the condition by which everybody feels "at home" not simply because being accepted but because they have an active role in society as citizens able to collaborate and contribute to the common good. In this respect, public space can be an occasion for that. It can play the role of "social infrastructure",[7] where people can socialize, do multiple practices, and experience their sense of identity, belonging, and self-expression in various forms, including "care" and collaboration.

PUBLIC SPACE AT THE CENTER OF CITIES POLICY

Public space design has always played a fundamental role in urban history and the construction of cities.[8] The urban open space organizes the distribution of buildings but also identifies the spheres of public life, representation of power and self-representation, exchange, commerce, externalization of opinions, and even protest. Public space is defined by both its form and the social activities it enables: no public space is given without the people who inhabit, use, and fill it with meaning: "First life, then spaces, then buildings. The other way around never works" says Gehl.[9] Although public space has always been the focus of projects, it has taken on a new centrality in urban policies and strategies in recent years. For different reasons: from the need to reduce car dependency in the city and environmental sustainability reasons to the more recent one, dramatically evident during the pandemic crisis, to have new spaces available for citizens and economic actors' activities, from a renewed rediscovery of the value of sociality to the will to bring the neighborhood and walkability dimension back to the heart of the urban discourse. Several cities can exemplify this renewed centrality.

In New York in 2009, the Bloomberg administration launched a vast experimentation program on public spaces called DoT (Department of Transportation Plaza Program)[10] to build a more 'people-friendly' city. The objectives were to ensure quality, public, open spaces no more than a 10-minute walk from residential areas, with redevelopment interventions on about sixty spaces. One of the most important was the partial pedestrianization of Times Square, one of the busiest central streets, with only 11% of its surface dedicated to pedestrians, and one of the biggest tourist hubs in the Broadway district (daily crossed by hundreds of thousands of people). The experimentation was initially carried out through tactical urbanism, low-cost and reversible interventions that limited themselves to preventing parking, coloring the asphalt freed from cars, and equipping it with simple - but recognizable - furnishing elements (tables, chairs, and planters) - managed, however, by entities in which private operators also participated, with the explicit objective of maintaining the space public, free and accessible. This phase disrupted that junction's imagination, uses, and mobility. A permanent transformation project followed, signed by Snøhetta architecture studio, winner of a competition that progressively modified that space. The Times Square project initiated a series of interventions in New York's public space to recover areas for pedestrians - tourists or residents - facing commercial activities but not strictly connected to them. An articulated system of management of public or private spaces for public use then guarantees the maintenance of these spaces.[11]

The experimentation by the city of Barcelona with the *super illas,*[12] developed within the 19th-century traditional blocks, starts from a different premise. The project introduced a street hierarchy, composing 'super blocks' by leaving traffic on the perimeter streets and forbidding it in the inner ones to reclaim public space. S.Antoni in the PobleNou neighborhood is one of the more interesting cases. The project aims to respond to high levels of pollution (in 2017, the level of NO2 pollution in the air in the neighborhood was 57 μg/m3, while the WHO health standard is less than 40 μg/m3); to the lack of green space (there, the standard of greenery per person is less than the rest of Barcelona); to the high rate of traffic accidents (in 2017, 12 people died in car accidents); to the noise pollution (according to WHO guidelines, the noise level in residential areas should not exceed 50dB during the day, 40dB at night: the noise level in 2017 in Barcelona was generally higher than 61.1dB); and also

sedentarism recognized as an impellent problem. The project reclaimed the street space by limiting car access to a single lane to coexist with bicycles and pedestrians. The new uses take over the street closely with the activities on the ground floor. The multi-level intervention redesigns uses, mobility, and a new landscape without changing urbanization. The project – realized with graphics over the asphalt and adaptive urban furniture - redesigned the street intersection by transforming it into large squares, where vehicles can no longer choose the travel direction, and roads are restricted to low speeds. In addition, new drainage areas were added, and numerous green places were created within the project. The main aim of these experimentations was to improve basic neighborhood activities, provide recreation spaces, facilitate contact with nature, and also self-management of community activities, enhancing the possibility of organizing cultural and social events.

In Paris, interventions in the transformation of public spaces, both permanent and temporary, have an equally long tradition: see the *Paris Plage[13]* initiative that temporarily transformed the banks of the Seine into beaches or the pedestrianization project of Place de la Republique,[14] a former roundabout reclaimed as a lively square for people. Here it is worth mentioning the recent program of the "la ville du quarte d'heure," introduced in 2016 by Carlos Moreno, inspiring many interventions and policy programs. The 15-minute city is "un nouveau chrono-urbanism".[15] people and time are back at the center of the discourses on the city, starting from a critique of the car-centered planning model and its effects on the separation of urban zones. Moreno suggests organizing the city into neighborhoods characterized by four main dimensions (proximity, mixité, density, ubiquity), information and communication technologies, and active and sustainable mobility (walking, cycling, and public transport). Moreno imagines, this way, a city where collective facilities are reachable within a walking or cycling distance of less than 15 minutes, suggesting that this model is more environmentally, socially, and economic more sustainable. This idea was the key element of Anne Hidalgo's political program when she was re-elected as the mayor of Paris in 2020. Moreover, it has been supported by the C40 network of cities, which helped spread its big success worldwide.[16]

The practical applicability of this idea in not-central, sprawl, or peri-urban situations is still to be evaluated. Not everything can be within 15 minutes everywhere, and the urban sphere is much more complex and multi-scalar than that. But in this city vision, inspired by principles of sustainability, and emissions reduction, where people are supposed to walk or cycle, street quality became even more important, likewise the pedestrian comfort or the ground floors designed to accommodate service and, in general, the public space. So, the 15-minute city concept and the linked intention of starting from the people, their movements on foot, and the possibility of a context where in walking distance inhabitants find their essential services - including commerce – contribute to highlighting the role of public space and its meaning.

WAYS TO MANAGE PUBLIC SPACES (MAINTENANCE, ACTIVE CARING, ANIMATION)

The cases cited above are just a few of the European and Western cities that recently put public space at the center of their policies, emphasizing the relevance of people. We can recognize a paradigm shift in those projects in which people are not just 'mere' users and final addressees of projects but actors to be involved in the design, implementation, and management processes.

Several guidelines for the design of public space, such as the *Expanding London's Public realms Design Guide* promoted by Good Growth by Design (GGbD), the Mayor of London's programme to shape a better city by promoting quality and inclusion in the built environment[17] or the *Spazio pubblico linee guida* by the City of Milan, put the focus not only on the physical and spatial dimension of projects but also on the way they are designed, realized, maintained, and on their management. And consequently, on the potential role of operators. In the Milan document (2021), for example, alongside the guidelines for designing sustainable mobility (the street as public space),

urban ecosystems (the relationship between public spaces and environmental sustainability goals), the quality of the urban landscape (public space to increase the urban attractiveness and contribute to the neighborhood's regeneration), the theme of social inclusion and activation is explicitly mentioned with the indication of promoting forms of synergy, collaboration, and partnership between actors.

The actions proposed to this end are varied. The guidelines mention, among other things, fostering measures to ensure the presence of people and promoting citizen activity and participation (street events, temporary interventions, collaborative programs, street art, etc.). To have a "quality public space", people's involvement - both as users and collaborators - appears fundamental.

The declared objective, though, is to obtain "a greater confrontation with the collective intelligence expressed by the territory, with the involvement of citizens, from the first conception phase in a relationship of reciprocal listening, to obtain shared decisions more adherent to the vocation of the places, useful to the concrete expression of their potentialities"[18]

The examples in which citizen participation has been experimented with in Milan are the experiences of the "Participatory Budget" activated for the first time in 2015, and the Collaboration Pacts, implemented in 2019 with the approval of the Regulation of Common Goods, and tested in the *Piazze Aperte* program, as illustrated below. These experimentations, beyond the specific outcomes, show a different way of thinking the public spaces management and its governance (how and who can take care of it) and imply a sort of shift: from "sponsorship" (contributing with funds) to forms of active involvement (having an active role through collaboration pacts) and from maintenance of the space to the animation of space (organizations of activities in synergy with other entities in the area).

MILAN: *PIAZZE APERTE* PROGRAM

In the Municipality of Milan, the attention to public space was manifested mainly in two main strategies in the urban plan, PGT 2030. One strategy aimed to enhance neighborhoods and their pedestrian-vocation areas by locally redeveloping everyday public spaces. Another strategy defined several squares of urban rank, where it would have been possible to start a regeneration process through densification.

The program *Piazze Aperte* (Open Squares) has been developed within the first framework. Promoted by the Municipality of Milan, developed by *AMAT (Agenzia Mobilità Ambiente Territorio)* in collaboration with Bloomberg Associates and the Global Designing Cities Initiative, the project aims to enhance public space as a neighborhoods meeting place, to expand pedestrian areas and to promote sustainable forms of mobility. *Piazze Aperte* used the approach of tactical urbanism.[19] low-cost, temporary, and reversible interventions that allow solutions to be tested and possibly corrected in the final project's development. The projects, launched through a Public Call "Open Squares in Every Neighbourhood" in 2019, later replicated with a specific focus on school squares, have been realized thanks to the involvement of citizens who can actively participate in the conception, development, and implementation of the projects, as well as in the activation and curation, according to the principles of shared administration, by signing a *Collaboration Pact*. Which is a written agreement with which the Municipality and active citizens (informal groups, associations, educational institutions, committees, foundations, and companies promoting so-called 'corporate volunteering') define the aims, objectives, and expected results, and the management modalities of the care, shared management, or regeneration of Open Squares as urban commons.

Since 2018 up to now 38 squares have been realized.[20]

Figure 1. Via Reni, Milan Piazze Aperte project: collective making of (source: author's archive)
Figure 2. Via Reni, Milan Piazze Aperte project: the green part (source: author's archive)

Figures 3 – 4. Via Reni, Milan Piazze Aperte project: daily uses (source: author's archive)

CONCLUSION: LESSONS LEARNT

The literature on participation is extensive,[21] as the projects experimenting with forms of involvement manifold that can vary according to contexts, objectives, and types of actors. In a nutshell, we can recognize at least three declinations. Citizens can be involved in:

a. the *co-design* phases (questionnaires, consultations, the collective definition of objectives, a tool that allows this type of activity is, for example, Participatory budgeting);

b. the *co-creation* phases (from this point of view, tactical urbanism with its light modalities is a formidable tool for including non-specialized people in the implementation activities);

c. the *co-management*, taking charge and care, and organizing animation activities (with Collaboration Pacts).

The Collaboration Pacts in the cases of Milan's open squares had two main objectives: the first was to involve the signatory citizens in the realization of the squares and in the design implementation (in the majority of cases, these were local associations, assisted by associations which, over time, had

developed skills in coordinating the work of volunteers in this type of implementation); the second one was to take care of the management of the public space, especially about three aspects: caring for the plants where they were present (watering the potted plants), organizing activities and events, and the possible repainting after some time. However, the variety of cases makes it possible to recognize specific objectives that such collaborative activities in the co-management of public spaces can pursue: improving the sense of belonging, boosting social cohesion in sharing the activities of care; enhancing a different culture of public space; strengthening the bond between public space and community.

These objectives, however, are possible provided certain conditions, which I list below as a partial conclusion to this reflection.

- The *temporary dimension* that tactical urbanism allows is fundamental. Because not only does it make it possible to see results immediately and at little expense and to test low-cost solutions, but above all because it allows for the involvement of - non-specialized - inhabitants. This type of activity is not without risk, which concerns forms of non-inclusion, because this type of activity typically only involves certain citizens who often have the social and cultural capital to get involved.

- Specific experiments operate on a *small scale*. The *micro-scale* of these tactical urbanism operations, such as some open squares, is a fundamental condition for citizenship to be involved in organizing activities and taking care of places. In this case, the risk is that the activities are too small and, therefore, incapable of having multiplier effects;

- A third condition is the presence of even small *communities of a project*[22] which may allow the development of proposals such as those presented in the open squares call and their transformation into a community of care. The risk is linked to the unequal distribution over the territory and the risk that if we rely only on even small communities already functioning, we will not intervene in contexts that are poor in active groups.

To sum up: a "livable city" is a city where people can feel they can participate and have a role; public space can have a crucial role in creating opportunities to participate; collaboration in managing public spaces can be one opportunity to participate: temporary interventions, small dimension, and existing community are some of the conditions for it. Limited participation, little integration with public administration work, and unequal diffusion on the territory are some risks to avoid. That can work for small spaces and temporary situations: what happens when the scale of intervention becomes more extensive, and the intervention permanent is still an open question.

NOTES

[1] Donald Schön, *The Reflective Practitioner* (New York: Basic Books, 1983)

[2] *Piazze Aperte*, Information on www.comune.milano.it/aree-tematiche/quartieri/piano-quartieri/piazze-aperte

[3] See, for instance, the Mercer livability index, discussed in Nora Osama Ahmed, Amr Mostafa El-Halafawy, and Ahmed Mohamed Amin., "A Critical Review of Urban Livability. European" *Journal of Sustainable Development*, 8(1),165.(2019). https://doi.org/10.14207/ejsd.2019.v8n1p165

[4] Susan Fainstein, *The Just City (*Cornell University Press 2010)

[5] Bernardo Secchi, *La città dei ricchi e la città dei poveri*, (Roma-Bari: Laterza 2013)

[6] Danni Liang, Martin De Jong, Daan Schraven, Lili Wang, "Mapping key features and dimensions of the inclusive city: A systematic bibliometric analysis and literature study", *International Journal of Sustainable Development & World Ecology,* 29:1, 60-79, (2022) DOI: 10.1080/13504509.2021.1911873

[7] At this regards: Nadha Hassen, Pamela Kaufman . "Examining the role of urban street design in enhancing community engagement: a literature review". *Health & Place,* 41, 119-132 (2016) and Sarah Marie Hall. "Social reproduction as social infrastructure". *Soundings: A Journal of Politics and Culture*, 76(76), 82- 94 (2020).

[8] Lewis Mumford, *The City in History* (New York: Harcourt, Brace and World, 1961)

[9] Jan Gehl, *Life between Buildings. Using Public Space*. (New York: Van Nostrand Reinhold Company, 1987).

[10] https://www.nyc.gov/html/dot/html/pedestrians/nyc-plaza-program.shtml

[11] Among different actors and ways to manage public spaces see the work of agencies as openplans www.openplans.org or the way privately owned public spaces are manteined
www.nyc.gov/site/planning/plans/pops/pops.page

[12] On *superilles*: https://ajuntament.barcelona.cat/superilles/en/

[13] Inaugurated in 2002 by Mayor Bertrand Delanoë, *Paris Plages* is a temporary transformation of the Georges Pompidou Expressway along the Right Bank of the Seine into an urban beach vacation.
https://www.pps.org/places/paris-plages

[14] See Amy Frearson, "TVK transforms Place de la République into Paris' largest pedestrian square", Dezeen, 4.1.2014 https://www.dezeen.com/2014/01/04/tvk-place-de-la-republique-paris/

[15] Carlos Moreno, Zaheer Allam Didier Chabaud, Catherine Gall, Florence Pratlong "Introducing the '15-Minute City': Sustainability, Resilience and Place Identity in Future Post-Pandemic Cities". *Smart Cities* 2021, *4*, 93–111

[16] In September 2022, C40 announces a partnership with NREP to fund a new Green and Thriving Neighbourhoods programme, deliver proof of concept for "15-minute city" policies and empower cities around the globe to implement ambitious net-zero and people-centred neighbourhoods. The programme implements neighbourhood pilot projects in at least five cities, and create an international network of practitioners to advise cities. https://www.c40.org/news/c40-nrep-collaborate-15-minute-city/

[17] https://www.london.gov.uk/sites/default/files/expanding_londons_public_realm_combined_final.pdf

[18] Comune di Milano, *Spazio pubblico, Linee guida di progettazione* pag. 54 (author's translation)

[19] See: Donovan Finn, "DIY urbanism: Implications for cities". *Journal of Urbanism: International Research on Placemaking and Urban Sustainability* 7(4): 381–398. (2014) ; Matthew Carmona, Steve Tiesdell, Tim Heath, *Public Spaces, Urban Spaces*, (Oxford: Architectural Press. 2010) ; Mike Lydon, Dan Bartman, Ronald Woudstra, *Tactical Urbanism 1: Short-term Action, Long-term Change*, (Miami: Next Generation of New Urbanists. 2011)

[20] A more in depth reflection about the case in Antonella Bruzzese, *The Piazze Aperte experience in Milan* (forthcoming)

[21] Among others: Mickey Lauria, Carissa Schively Slotterback*, Learning from Arnstein's Ladder: From Citizen Participation to Public Engagement* (New York, Routledge 2020) DOI
https://doi.org/10.4324/9780429290091; Jens Kaae Fisker, Letizia Chiappini, Lee Pugalis, Antonella Bruzzese (eds.) *The Production of Alternative Urban Spaces: An International Dialogue (*London - New York : Routledge, 2019)

[22] Ezio Manzini. *Abitare la Prossimità. Idee per la Città dei 15 Minuti* (Egea: Milan, Italy, 2021)

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DISRUPTION AND TRANSFORMATION: BUILDING RESILIENCE OF URBAN NEIGHBOURHOODS

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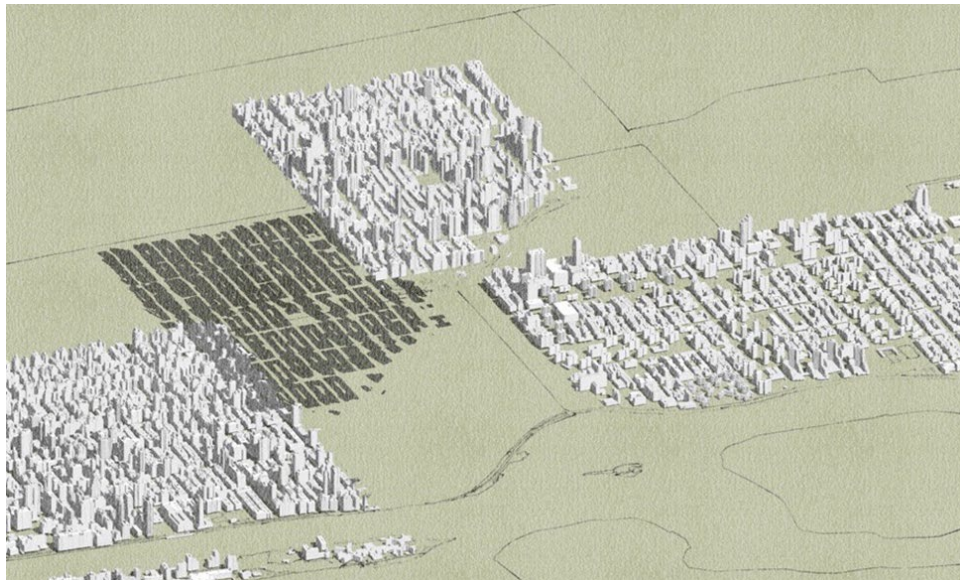
Figure 1. Exploded Isometric Isolating Case Study Neighbourhood (Source: author)

INTRODUCTION

The societal disruption precipitated by the pandemic in combination with increasingly challenging climatic conditions is generating stresses/forces for transformation of cities and urban neighbourhoods. As mono- functional commercial centres devolve, residential urban neighbourhoods can be assessed for their potential as geographically concentrated multi-modal centres for a 24/7 pattern of daily life, where shared architectural and urban spaces are transformed to maximise efficiency and intensity of use, while buildings and urban systems are pushed to increasing levels of environmental performance. Through this process, new public and private spatial typologies will emerge to support a new emerging lifestyle pattern that responds to the critical need for social connectivity and community resilience/sustainability.

The community resilience of these neighbourhoods will depend upon increasing facilitation of a meaningful camaraderie of the neighbourhood population by strengthening social cohesion between strangers in the public realm. The nature and quality of the public spaces in particular are critical to this facilitation. As the provision of public space in the American context is historically problematic,[1] multiple avenues of analysis are necessary to deepen our understanding of how we can produce a

viable and vibrant network of public space where this network is lacking: first, we must examine the general tradition of place and space making in the American City, then interrogate the social and symbolic nature of urban morphology in a specific urban context including an in-depth examination of the evolution of the place and space making in a case- study neighbourhood. This paper focuses on these two steps in order to set up a subsequent paper that will explore the potential for new networks of public space through speculative design interventions in existing urban neighbourhoods. This process will include the exploration of both traditional and new types of public space and provoke new visions for the transformation of residential urban neighbourhoods into vibrant multi-modal centres for urban life.

Figure 2. Case Study Neighbourhood: 5th Ave to East River, 85th to 97th Street (Source: author)

AMERICAN / NEW YORK CITY CONTEXT

A review of the early planning of American towns and cities by European colonists elucidates their recognition of the important role public squares play as places of hierarchy within the larger structure of a town or city plan.[2] These open spaces were intended as places that set up sites for the buildings where the business of the community was conducted and/or townspeople gathered to worship, buildings that in combination with the open space naturally come to be understood as symbolic of the community itself. Large towns and cities of the northeast like Philadelphia, Boston, Albany, Detroit, Buffalo, New Haven, Hartford, and smaller towns like Fair Haven Vermont and Ipswich Massachusetts all integrated open spaces in the form of public squares or greens in this way.[3]
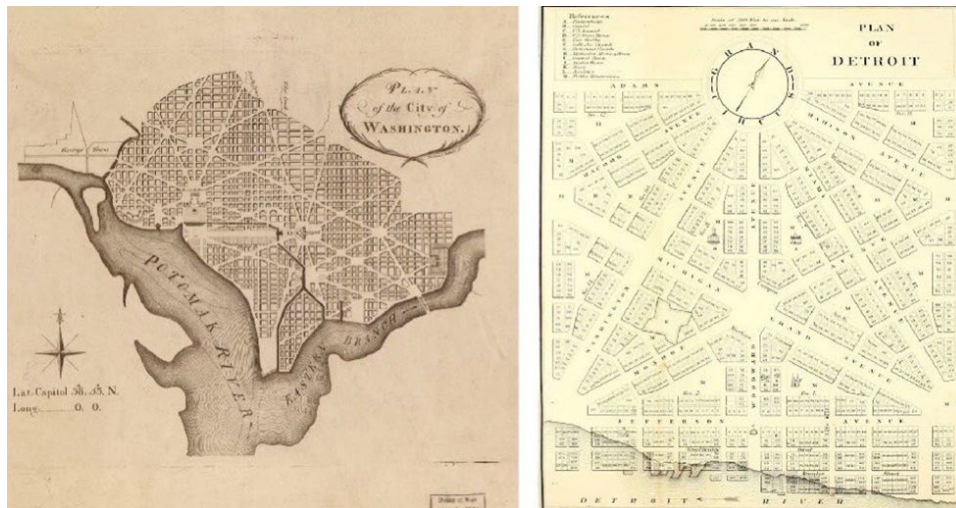
Figure 3. Plans for Washington DC (1792) and Detroit (1807) (Sources: Humanities Texas, American State Papers)

New York City, however, offers a contrasting example. Many town plans with clear integration of hierarchical public square were disseminated through publication and preceded or were contemporary with the 1811 plan for Manhattan. In the context of rapid colonial/immigrant population expansion across North America, the commissioners charged with planning the expansion of New York City up Manhattan Island take a clear stand on the nature of the urban form they would institute; they explicitly reject the idea of making urban squares a major feature of their urban form and only reluctantly include some scattered open spaces, most intended for sites for specific functions like markets or a parade ground.[4] These commissioners critique and reject developing their plan around figural public squares serving as prominent sites for public buildings, dismissing European capitals as models but also likely referencing recent American urban plans for Washington DC and Detroit. The commissioners design their plan instead around simple blocks that subdivide into regular, rectangular lots suitable for town houses to maximise efficiency and ease of construction. This priority of delineating lots for townhouses aligns with the early 19th century surge of real estate and land speculation which is a clear driving force behind many decisions about urban form in

19th America;[5] speculation was particularly intense in this region, with Brooklyn's development a clear case study of prioritising speculative development over public space.[6]

The clear consequences of this approach to Manhattan's urban form are the continuity of dense urban fabric, the lack of differentiation or hierarchal siting of community and public buildings within this continuity, and no clear focal spaces for community gathering or special activity.[7] Further, beyond the impact on social and civic spatial infrastructure, the plan's execution misses the opportunity to integrate natural features like streams and coastal marshes and mudflats that could have provided valuable relief from dense fabric with recreational spaces, bio-philic environments, and the benefit of naturally resilient landscape features we especially desire today in urban neighbourhoods.[8]

Figure 4. Commissioners' 1811 Plan for New York City (Source: Library of Congress)

INTERROGATION OF URBAN MORPHOLOGY

The disruption of the normative pattern of daily life in cities like New York by the COVID-19 pandemic unlocks an opportunity for new theoretical and practical analysis of modern urban form in order to establish a basis for the transformation of urban neighbourhoods that responds to new priorities. We must examine how well architectural and urban spatial conditions are supporting the evolving physical, functional, psychological, spiritual, and social needs and desires of 21st century urban dwellers, all of which are essential to community resilience. Architectural and urban spatial conditions in many cities, even those with mixtures of use, were often predicated on a certain level of geographical separation of residence and workplace. Euclidean zoning limits the mixture of uses even in urban neighbourhoods, reinforcing the commuting pattern to distant offices in commercially oriented districts of the city. The previous perceptions of and expectations for residential neighbourhoods have dissipated with the pandemic, putting pressure on these neighbourhoods to satisfy the redefined, reprioritized patterns of daily life without a necessary commute to another place. The aspirations for a new form of daily life are driving a new image of the urban neighbourhood in the very sense Kevin Lynch examined in the 1960s. In *The Image of the City* Lynch notes the imperative for the urban environment to meet our needs through its organisation but also through its potential for stimulating aesthetic engagement and symbolic reading. Lynch stresses the importance of the urban environment serving more than a mere instrument for daily life. For Lynch, this imperative is especially important in the American city, where a period of neglect, mistakes, destruction and decline eroded for many Americans the conviction that one can lead a meaningful and rich life in the city.[9]

Lynch's analysis of the city's form reveals it as an equally critical socio/cultural work of science and art as architecture is understood to be. Lynch follows the earlier examination of the essential social nature of the city put forth by Lewis Mumford. Mumford's analysis of the relationship of urban form to social engagement and meaning leads him to conclude that "the city in its complete sense, then, is a geographic plexus, an economic organisation, an institutional process, a theatre of social action, and an aesthetic symbol of collective unity."[10] The city symbolises human culture but also fosters the evolution of human culture as it provides an intentional place and "dramatic setting for the more significant actions and the more sublimated urges of human culture….It is in the city, the city as theatre, that man's more purposive activities are formulated and worked out, through conflicting and cooperating personalities, events, groups, into more significant culminations."[11]
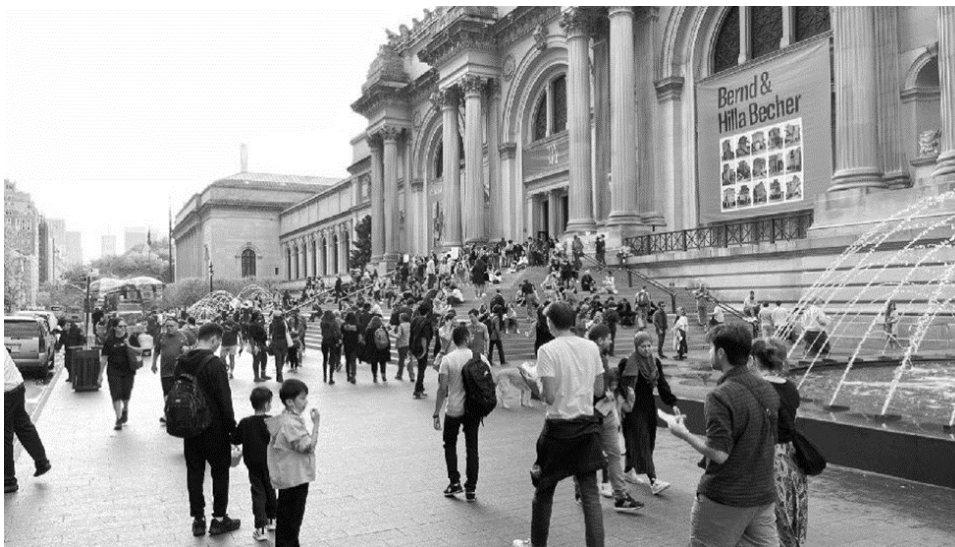
Figure 5. The vibrant public space at the Metropolitan Museum of Art @ 5th Ave and 82nd (Source: author)

The city is a unique place for an intense form of social life and cultural evolution. Mumford believes that the design of cities can either frustrate or support social drama and determine its social/cultural significance. Mumford sees value in both the camaraderie of city life but also the dramatic power of disharmony and conflict. This distinguishes the city from rural or suburban life; he describes how the city's unique facilitation of the "focus and intensification" of human activity results in an important evolution of culture.[12]

This concept of intensification is sympathetic with the concept of the 15-minute city as proposed by Carlos Moreno. Moreno critiques the current condition/configuration of the 21st century city's public realm and its environmental quality and facilitation of social interaction. Moreno's analysis of the "absurd organisation" of cities that require long travel distances sees the disbursement of city functions and the time spent traveling, especially with heavy movement of cars and trucks through the city, as a degradation of the environment and the quality of life in the city. He sees the current typical condition of the city street as undermining human well-being, fostering environmental injustice, and contributing to the climate crisis.[13] Moreno then proposes centering new urban design on the needs of city dwellers. These needs are not limited to the practical needs characterized by zoning and 20th century planning; he emphasizes the psychological, spiritual, and social needs that support a healthy and happy life in an urban neighbourhood.[14] His proposal for compact urban neighbourhoods as critical models that respond to these need furthers the analysis of Lynch, Mumford, and others.[15] Moreno's phrase "converging life into a human-sized space"[16] mirrors Mumford's phrase "focus and intensification." He suggests we have adapted to an unnecessarily hostile environment that robs us of our dignity in daily life, and with reflection and critique, we can transform our urban neighbourhoods in ways that recenter the pedestrian and the social life of the city as the critical design driver of the public realm. His guiding principles of ecology, proximity, solidarity, and participation[17] focus on people in urban space rather than architectonic constructs that seek to mechanise daily life. His mantra that the "rhythm of the city should follow humans, not cars"[18] seems obvious but cannot be discounted after a century of planning dominated by accommodating the car.

Figure 6. Couples dance in a public square in Nimes the evening of the 2022 summer music festival (Source: author)

TRANSFORMATION OF THE PUBLIC REALM

Resetting the conception and image of the public realm around humans offers the opportunity to develop within the existing spatial structure a new emphasis on public squares as outdoor rooms that both facilitate and symbolise the social connection between the people of the urban neighbourhood. The definition of new pedestrian spaces that serve as places for seeing and being seen while running daily errands or taking kids to school on a typical day and as places for special community gathering at other times could have profound impacts on urban neighbourhoods that currently lack this critical social infrastructure. This spatial focus for social interaction has impacts described clearly by Jane Jacobs, who reflects on the fundamental qualities of urban life in relation to urban morphology. Central to this reflection is the way urban form can support and sustain the peaceful interaction of strangers. The public realm can be designed to manage the crossing paths of strangers in urban spaces with the reinforcement of the value of human contact in public space, of the value of sharing the public realm of the city. She writes that "the sum of such casual, public contact at a local level-most of it fortuitous, most of it associated with errands... is a feeling for the public identity of people, a web of public respect and trust, and a resource in time of personal or neighbourhood need."

Particularly in special moments of gathering, the public square becomes a theatrical place for organized or spontaneous social drama. This drama in turn embeds within the space what Lynch describes as a "memory trace," a cultural footing upon which meaning, and significance can accumulate, enriching and animating the place. This enriching meaningfulness overtime is described by Aldo Rossi as evolving into a representation of the culture of the neighbourhood. Within that representation, places can take on a critical role as expressive repositories Rossi calls "urban artefacts."[19] The urban artefact is understood here to be a place that accumulates collective experiences and memories, imparting a particular type of knowledge that facilitates the transmission of culture. The artefact is both conditioned by us over time, but in turn conditions us and future generations. The artefact sparks the imagination as it links us to our collective memory.

Paul Zucker, parallel to Lynch, Mumford, and Rossi, provides a detailed analysis of the nature of the public square as a work of art that "creates a genuine emotional experience comparable to the impact of any other work of art."[20] This artful potential is achieved through the careful and insightful consideration of the public square's size, proportion, position, definition, and treatment. Zucker's analysis of the human response to the artfully designed urban square is not merely aesthetic satisfaction; its role is not merely decorative or formal functionality. The square for Zucker is not just an aesthetic work, but a "central formative element" of the urban community. He states that without the square, the inhabitants of the urban fabric are merely individuals living as an aggregation.[21] This analysis continues Lynch's argument that the nature of the urban square serves both a physical and psychological function. Zucker describes how urban squares "create a gathering place for the people, humanising them by mutual contact, providing them with a shelter against the haphazard traffic, and freeing them from the tension of rushing through the web of streets,"[22] consistent with the observations of Jane Jacobs. Zucker elegantly describes a public space network of streets and squares as rivers and lakes, with the moving water of the river slowing and finding a stillness in the space of the lake.[23]

Zucker's view of the human response to sheltering nature of the square is a critical insight that is often not appreciated enough. Some argue that life in public squares is culturally driven and reject an innate human response to squares as sheltering places to slow down or rest within the flow and energy of urban streets. Prominent among those making this argument is Robert Venturi. In *Complexity and Contradiction*, he notes his observation of an American cultural aversion to "sitting in a square." He states the Americans should instead be "working at the office or home with the family looking at television." He views a cultural contrast, where the traditional square found in European cities is for

collective use and public ceremonies and implies that modern American culture does not value this type of life in the commons. This observation,

however, is presented in a troubled context of suburbanisation, white flight, redlining, and large-scale demolition of American urban neighbourhoods causing mass displacement of people and loss of social and economic capital. But even beyond this context, Venturi's argument does not hold up to recent experimental conditions in cities around the United States generated by the pandemic. For example, the pandemic's disruption inspired the Open Streets program in New York City, which demonstrated there is a significant pent-up demand for public space where people can gather, linger, lounge in outdoor rooms where they can see and be seen, and feel a camaraderie with their neighbours. Alison Synder documents how the Open Streets program in Brooklyn generated a new modality of life in an urban neighbourhood, where the community treated the vehicle free space of a closed down street like a square, an attractive and vital urban space where they could be together in the public realm in a way not previously accommodated by their car- oriented street network or even nearby parks.[24]
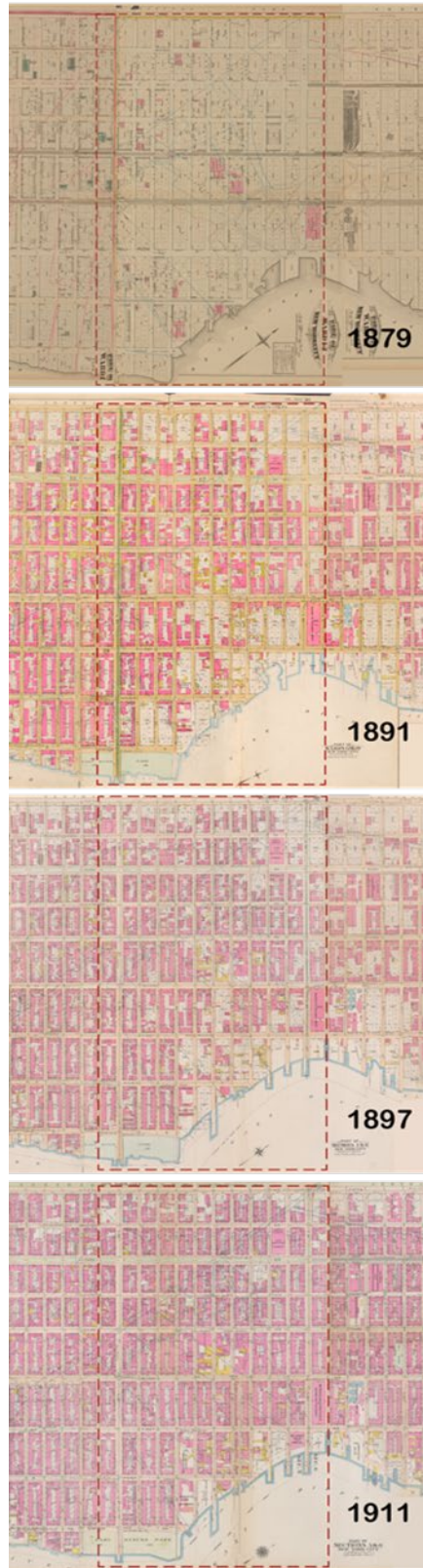
Figure 7. Pre-urban condition (above) and 1867 urbanization in progress (below) (Source: New York Public Library)

APPLICATION TO A CASE STUDY NEIGHBOURHOOD

The theoretical analysis of the critical role of public squares in urban neighbourhoods provides a thematic context for a future examination of a case study neighbourhood on the Upper East Side of Manhattan. While the 1811 grid established the new street and avenue structure up to 155th street, the territory on the Upper East Side of Manhattan remained largely undeveloped until the wave of urban development reached this territory in the 1870s and 80s. Historic maps offer us the opportunity to observe and analyze the growth of the neighbourhood in great detail, including the housing typologies and mixture of uses. These maps also offer a clear documentation of the density of the built environment and the restriction of public open space to the perimeter of the neighbourhood (Central Park and Carl Schurz Park.) The variation of the avenues (running north south) is also clearly apparent, with a range of narrow, wide, and extra wide (Park Ave.) avenues. The wide streets (running east west) such as those at 86th and 96th subtly act as commercial main streets and simultaneously neighbourhood boundaries.

As the historic maps document, there is no evidence of an effort to define urban spaces in this neighborhood. This planning contrasts with other neighbourhoods of the city where developers independently of the 1811 plan, created new squares to enhance the value of their land holdings. A scale comparison shown in figure 9 depicts the density of squares between 3rd street and 28th in contrast to this Upper East Side neighbourhood.[25] The lack of development of the public realm of the Upper East Side beyond the street grid now stands out as a critical omission, especially considering this neighbourhood's current population density ranking as the highest in the city.

This population has long ago adapted, as Moreno observes in many cities, to the instrumental design of the neighbourhood, accepting the domination of cars, busses, and trucks, and now e-bikes whizzing by and consuming most of the public realm. This adaptation includes the unwitting sacrifice of social cohesion and havens for unobstructed social engagement. Further, this condition of the public realm degrades the living environment of this large urban population. The noise, pollution, and dangers of the traffic stress the daily movement of pedestrians while the impervious pavement required for the large volume of vehicles compounds climate stresses, contributing to the heat island and extreme summertime temperatures as well as creating dangerous flooding conditions during heavy rain events. The disruptive force of the pandemic, however, provides an opportunity to critically challenge this status quo and examine options for transformation of this environment.
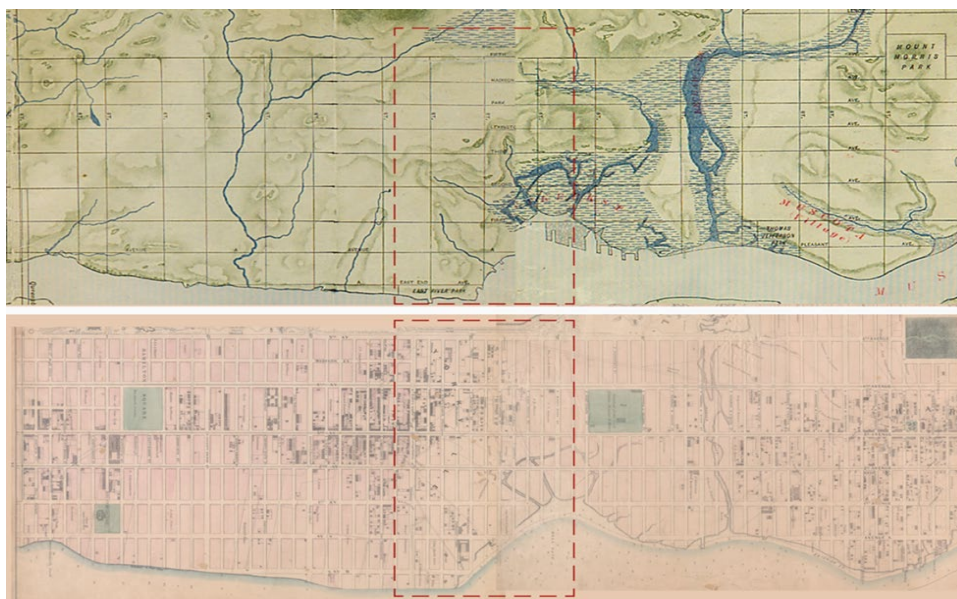
Figure 8. Fire atlases document urbanisation of study area (Source: New York Public Library)

NEXT STEPS

Together, the social and environmental stresses on urban neighbourhoods today drive the critical need for transformation, both of the fabric itself but especially the design of the public realm. New design explorations are necessary to test configurations that achieve the practical while endowing place with potential for meaning and memory. Instrumentally focused development alone has little potential to meet the needs of our disrupted and newly reflective moment. We seek now more than ever the human contact and connection that elevates our spirit and deepens our sense of place. This project, still in its early stages, is intended to contribute research and design explorations that will leverage and transform our existing urban form and public realm, shaking us out of our acceptance of degraded urban conditions and leading us to the solutions that truly provide the livable and resilient cities that we desperately need at this moment in history.

Figure 9. Scale comparison of neighbourhoods and provision of public squares in 1911 Manhattan.
(Source: New York Public Library)

Figure 10. Section of case study neighbourhood. (Source: author)

NOTES

[1] As an example, previous research by the author in Brooklyn New York reveals a clearly problematic process of defining the public realm in a new city. See Jason Montgomery, "The Archeology of Brooklyn City Hall Square: Seeking Insights for Re-establishing Social and Civic Infrastructure in Meaningful Places in the American City," in *AMPS Proceedings Series 29.1. (In)Tangible Heritage(s),* ed. Howard Griffin (Canterbury, England: AMPS-University of Kent, 2022): 409-419. See also research on the urban renewal period in American cities including Kevin Lynch, *The Image of The City* (Cambridge, Mass: The MIT Press, 1990), 2.

[2] John Reps, *The Making of Urban America* (Princeton: Princeton University Press, 1965), 2.

[3] These plans are documented in various chapters of John Reps, *The Making of Urban America* (Princeton: Princeton University Press, 1965).

[4] *The Greatest Grid: The Master Plan of Manhattan 1811-2011,* ed. Hilary Ballon (New York: The Museum of the City of New York, 2012), 40-41.

[5] In his chapter titled "Cities for Sale: Land Speculation in American Planning," John Reps describes the emergence of land speculation in the mid 18th century and its impact on town planning. John Reps, *The Making of Urban America* (Princeton: Princeton University Press, 1965), 349-380.

[6] See Jason Montgomery, "The Production and Destiny of Public Space in an American City: Examining the Emergence and Disruption of Brooklyn City Hall Square," *Architecture_MPS* 23, 1 (2022): 4.

[7] The 1811 plan, for example, misses many opportunities to integrate public squares with a graciousness like Philadelphia's plan or the execution of Savannah.

[8] The 1811 plan does show a minor interest in forming spaces around natural ecosystems, including a possible park along the East Harlem waterfront, but these spaces like this one are quickly abandoned in favor of more saleable land.

[9] Kevin Lynch, *The Image of The City* (Cambridge, Mass: The MIT Press, 1990), 2.

[10] Lewis Mumford, *The Culture of Cities* (New York: Harcourt, Brace and Company, 1938), 480.

[11] Mumford, *The Culture of Cities*.

[12] This notion of intensification here needs to be distinguished from congestion or density, both of which evoke negative connotations to most city dwellers. To be sure, the actions taken in the American city in the mid 20th century, while seeking to open up the city, de-densify, and reduce congestion had a stultifying impact by distributing rather than focusing human activity, lessoning the intensity and dissipating the social coherence and cultural potential of the city. Whether under the guise of the City Beautiful or Urban Renewal, the planners replaced intensification with monumentality, formality, suburban landscapes, and most critically, emptiness and sterility.

[13] Carlos Moreno, "Carlos Moreno: The 15-Minute City | TED Talk." TED. Accessed June 6, 2023. https://www.ted.com/talks/carlos_moreno_the_15_minute_city, 4'.

[14] Charles Montgomery explores these critical needs. Charles Montgomery, *Happy City : Transforming Our Lives through Urban Design* (New York: Farrar, Straus and Giroux, 2013).

[15] Leon Krier and many New Urbanists extoll the virtues of compact urban form and the contrast between the benefits of this urban form and sprawling, car centric, zoned suburban environments. Leon Krier, Richard. Economakis, Demetri. Porphyrios, and David Watkin, *Leon Krier : Architecture and Urban Design, 1967-1992* (London: Academy Editions, 1992).

[16] Moreno, Carlos. n.d. "Carlos Moreno: The 15-Minute City | TED Talk." Accessed June 6, 2023. https://www.ted.com/talks/carlos_moreno_the_15_minute_city.

[17] Carlos, et al. *Carlos Moreno*. 4'.

[18] Carlos, et al. *Carlos Moreno*. 6'30.

[19] Aldo Rossi, *The Architecture of the City* (Cambridge: The Institute for Urban Studies and MIT Press, 1989), 21-34.

[20] Paul Zucker, *Town and Square from the Agora to the Village Green* (New York: Columbia University Press, 1959), 1.

[21] This notion of aggregation is a poignant description of the case study neighbourhood.

[22] Paul Zucker, *Town and Square from the Agora to the Village Green* (New York: Columbia University Press, 1959), 1.

[23] This conception sees streets and squares as a continuum of space rather than as isolated components of a system.

[24] Alison B Snyder "The Designed and the Ad Hoc: Dynamic Remakings of Street Space in New York City," *Architecture_MPS,* 2022. Vol. 23(1). DOI: 10.14324/111.444.amps.2022v23i1.002

[25] The infrequency of public squares as New York grows north is likely part of a lack of consensus view of the value of these spaces in the city. A poignant example of this is St. John's Park west of Washington Square Park. This space, developed with a clear goal of real estate enhancement, disappears within decades of its establishment, with an industrial building built on the land of the square, eliminating a dignified square that would likely be highly valued today.

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WHEN TIME IS NOT OF THE ESSENCE: SLOWNESS AND CERTAINTY BEYOND *THE 15 MINUTE CITY*

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INTRODUCTION

What if our cities' structures (i.e., its streetscape and movement spaces) were not defined temporally (i.e., by proximity and time of travel), but rather by connectivity to place and others within place? This question is of increasing significance in the context of urban discourse, with increasing calls for a *15-minute city*[1] and related paradigms[2] structured around a 10-minute walking / 15-minute biking radius, prioritizing human-paced travel supportive of environmental concerns and inhabitants' well-being. Such human-scaled paradigms are positioned in marked opposition to the car as the measuring device of urban structure. Prompted by questions on a proposed[3] health centre in the city centre of Plymouth, UK, and outside the key neighbourhood of Stonehouse it was meant to serve, we investigated the health centre's perceived accessibility. Through narrative inquiry and co-joined mapping we explored Stonehouse residents' current movement to the city centre. Emergent from our investigation is a suggestion that time is not of the essence for urban structure, and more significant is enabling connectivity to place and others.

Within this text we will explore four components. First, we will situate our investigation in the context of Plymouth and Stonehouse. Second, we will outline our research methodology, grounded in narrative inquiry and mapping. Third, we will review the findings arising from our investigation. Fourth, we will consider possible trajectories emergent from our investigation.

CONTEXT

Plymouth is a city of 260,000 on the UK's Southwest coast, known as Britain's Ocean City and for its maritime history, including as the homeport / departure points for: Sir Francis Drake's defense of England against the Spanish Armada in 1588; the North American-bound Pilgrims in 1620; and Charles Darwin's epic voyage of scientific discovery in 1831. The following years reinforced the maritime narrative, with shipbuilding, trans-Atlantic cruise liners, maritime trade, and the Royal Navy featuring significantly in the city's socio-cultural and economic fabric. Crucial to our discussion however is the decline of this maritime strength following World War II, leaving behind communities devastated by the loss of jobs and co-joined social poverty.

Stonehouse, sitting west of Plymouth's city centre, is still affected by Plymouth's socio-economic decline, registering in the lowest 1% of social deprivation nationally. Life expectancy within Stonehouse is 7.5 years less than the rest of Plymouth.[4] This condition has been exacerbated by the neighbourhood's poor overall living environment, with 33% of local rented dwellings identified as

"non-decent."[5] Depressed economic livelihoods further exacerbate poor health, with 36% of children in Stonehouse living in extreme poverty.[6]

Historically underfunded health clinics in Stonehouse have struggled to support the community in the face of these challenges.[7] In this context Plymouth's City Council and the University Hospitals Plymouth NHS Trust won funding through the NHS[8] Cavell Program, enacted to establish community-based health centres to provide community-based preventive care. The proposed health centre was envisioned to 'act as a catalyst for regeneration'[9] in the city centre's economically depressed West End. It was intended to replace five existing medical clinics dispersed west of the city centre, including three in Stonehouse.

Figure 1. Site of proposed health centre in Plymouth city centre with Stonehouse neighbourhood to left with photographs depicting Western Approach. Image: L. Dinning.

The proposed site raised questions within the Stonehouse community (i.e., including for both residents and other community-based stakeholders) about its accessibility to Stonehouse residents. While adjacent to Stonehouse's eastern boundary, the proposed health centre site was further than a 10 minute walk away for /many residents of Stonehouse. Moreover, a major six lane thoroughfare (the Western Approach) acts as a boundary between Stonehouse and the West End. Exacerbating this boundary is a two-football field long, multi-story car park on the Western Approach's west side, acting perceptually as a wall between the West End and Stonehouse.

METHODOLOGY

Prompted by discussions with community residents and stakeholders through other community-based work we were doing, we were encouraged to explore the siting of the proposed new health centre. Owing to political sensitivities, we shifted our inquiry to consider the accessibility of the proposed health centre for Stonehouse residents. That is, we weren't questioning the siting of the proposed site of the health centre, but the nature of the journey from a local resident's home to the health centre. In Stonehouse the significance of this accessibility is further intensified by a lack of car ownership and

the prohibitive cost of public transport for many residents. Further challenging is the lack of available public transport serving some areas, notably Stonehouse's north side.

Our investigation was founded on three key aspects. Firstly, we began with the principle of the 5 minute walk or 'pedestrian shed' (an approximately 500 metres radius) marking how far people will typically walk in the city to access services.[10] A concurrent literature review extended our inquiry within the concept of the *15 minute city*; which like the 5-minute walk conceptualizes accessibility as defined by a 10-minute walk or 15-minute bike ride.[11] In our investigation we used a walk to the Plymouth City Market in the city centre's West End as a surrogate for walking to the proposed health centre.

The second key aspect was narrative inquiry prompting participants, notably but not limited to Stonehouse residents, to tell stories. This recognizes stories as 'a "meaning-making" process.[12] It equally recognizes the presence of narrative in our everyday lives, as "we dream in narrative, daydream in narrative, remember, anticipate, hope, believe, plan, gossip and learn by narrative."[13]

To establish a common ground between respondents, we first engaged respondents through set questions as a way of prompting them to tell stories. These questions included:
- How long does it take you to get to your current health care site?
- How long does it take you to get to the Plymouth Market in the city centre?
- How do you feel about the location of the Plymouth Market area?
- How do you travel to the Plymouth Market area? Why do you choose to travel there this way?
- How do you find this journey? Why?

The third aspect of our methodology was prompting participants to generate mental maps concurrent with the narrative inquiry. This approach borrows from urban planner Kevin Lynch's work, which aimed at capturing a *sense of the city*. One of his principal methods was analysis of maps drawn by people of the mental image of place they use to locate themselves in the city, which he calls a mental or cognitive map articulating the interaction between observer and environment.[14] Like Lynch, our participants' maps were later synthesized into a single partipants' map centred on repeated elements. Our participants' maps were produced through their tracing their journey to the city centre market on top of an aerial view of Stonehouse and the city centre.

Participants in our study combined key stakeholders (NHS staff, affected medical practitioners, local involved professionals) and residents / patients of the local affected surgeries in the Stonehouse area. Each was asked to contribute to our prompting questions; in parallel their map was used to situate the conversation and spatialise personal experiences concerning their access to the city centre.

In adopting Lynch's mental mapping, we recognise critiques which challenge its lack of qualitative and meaningful perceptions of place.[15] It was for this reason that we co-joined the use of this mental mapping with the participants' narratives, so situating their narratives in place.

Figure 2. Synthesized participants' map showing routes and spaces within west end of Plymouth city centre and Stonehouse. Image: L. Dinning.

RESEARCH FINDINGS

What emerged from this research was not as expected, given already voiced community concerns on the proposed health centre's inaccessibility. Given our *a priori* recognition of the 5-10 minute walking radius as a measure of urban accessibility, we had expected time limits to be a significant factor in community discussion of urban structure. Revealed however was that temporal distance, i.e., how long people are willing to walk, was not as significant as we expected. Indeed, an accessibility afforded by a 10-minute walk as per the *15 Minute City*, was not seen as critical; nor was it the key determinant of participants' chosen route. Valued more that any quantitative temporal dimension were qualitative dimensions related to contact with place and others within place.

Examining the quantitative dimension further, neither a 5 nor 10-minute walking distance was identified as a temporal limit. Rather, walks of 15 – 20 minutes were cited as a reasonable distance. This time was even extended up to 30 minutes for those walking with children or choosing to take a more scenic route. Unsurprisingly journey time was more of an issue for those with mobility impairments, but not so markedly as to suggest a 5 or 10-minute journey time defined a limit on accessibility. In contrast to existing discourse, walking journeys of longer than 10 minutes were perceived as accessible.

Of greater concern to participants was the boundary formed by the Western Approach. The sense of boundary it projects is exacerbated by disjointed street crossings often requiring two light changes (one across each direction of traffic) to cross the road on foot. Similar concern was conveyed about walking along main vehicular routes. Respondents spoke of walking out of their way on side streets, even if it increased their travel time.

A further challenge is posed by the presence of unsocial elements, notably those involved in drug-related activities, at particular points along some journeys. A similar concern was noted about isolated areas, especially for women. These concerns give rise to people walking out of their way, again even if requiring a longer journey.

In contrast, participants' valued a sense of greater connectivity with place and others in place. They were willing to even go out of their way to walk through more interesting places and be around other people – not only in terms of safety, but also for the vibrancy and stimulation offered, and to be around and connect with others. Identified by respondents as enabling such connectivity to place and others were features such as greenery or places to sit, or streets with shops.

DISCUSSION

In this discussion, we come back to our initial question; i.e., what if cities' structures were not defined temporally (i.e., by proximity and time of travel), but rather by connectivity to place and others within place? Emergent from this is a questioning of the emphasis on time in the *15 Minute City*, and a proposition to reframe discussion of urban structure with an emphasis on enabling connectivity to place and others.

In questioning the emphasis on time, we have adopted the *15 Minute City* as a surrogate for wider discourse. In doing so, we do acknowledge the phrase the *15 Minute City* is useful; it is easily remembered, evokes recognisable imagery and associations, and is both simple and deep. All of these enable its widespread recognition, as attested to by its over 1 billion results in a Google search.[16] The phrase does however directly emphasise time, and resultant understanding and discussion. This is reinforced by the concept's overarching agenda for urban structure founded on a 10-minute walking radius, its focused critique of modernist urban structures emphasising time, and the provision of cultural, economic and environment assets within that 10 minute walking radius.[17] Unfortunately, this emphasis has shifted attention away from the benefits the concept advocates including wellbeing, inclusivity and economic livelihood.

Equally to be acknowledged is the advocacy within the 15 Minute City for connectivity to place and others. These messages are getting lost however, and proponents of the *15 Minute City* find themselves caught up in arguments about perceived time-induced restrictions on movement and being confined to living within 15 minute travel zones.[18] We would conclude, as do others, that the emphasis on time is unfortunately misguided.[19] Moreover, we argue the discussion needs to be reframed with an emphasis on enabling connectivity to place and others. What follows is a brief speculation on this reframing.

That the concept of connectivity to place is valued and maintains relevance is a given (and hence not further examined here), as attested to by extensive discourse from various fields such as architecture, cultural anthropology, cultural geography, and environment behavior studies.[20] Equally, much of this same discourse speaks values connectivity to others. Such sensibilities remain both valid and strong despite any challenges to it, e.g., geographic mobility[21] or any smart capabilities to engage digitally.[22]

This importance of connectivity to others is further reinforced by research on contact theory. Contact theory argues humans are one of 'the most social species on the planet, with brains uniquely adapted for living in large groups.'[23] Moreover, interaction with others can provide multiple benefits including: heightening expectations about future interactions;[24] increasing one's sense of happiness and health;[25] and a 'a sense of meaning and purpose in life, which, in turn, enhances mental and physical health.[26]

In a broader sense, connectivity with place and others in place lies at the heart of the idea of the city as rooted in *civitas*. *Civitas*, the origin of the word city, describes 'the coming together of people in order to make a community.'[27] Cities offer space 'for face to face contact of amazing variety and richness.'[28] Afforded by this contact is a sense of intimacy, not as privacy, but as an intentionality to make known publicly or formally, in effect getting to know others.[29] Equally, through such contact we get to know ourselves. Central to this latter argument is that greater understanding is achieved in dialogue with another, indeed that we can only become our whole selves through encounter with

another.[30] Dismissing the false assumption that we autogenically define ourselves, we are also defined through our interaction with others.[31]

It is this getting to know the other – whether as place or as others in place – that was identified by respondents as a primary issue. We would argue this is essential in making our cities livable, or in other words if we want to make our cities more livable, we need to structure our cities to enable people to get to know place and others in place. The structure of place plays a critical role; getting to know others does not happen in the abstract but rather is spatially situated,[32] even if sited in a virtual domain.

While the places where we can meet the other can occur anywhere, we posit that specific sites can be instrumental in enabling these encounters. We conceptualize these sites of encounter metaphorically and experientially as *thresholds*.[33] This thinking draws upon Bakhtin's examination of thresholds in the novels of Fyodor Dostoevsky. In Dostoevsky's novels internal spaces such as staircases, the front hall, and corridors act as thresholds between spaces; externally, streets and public squares take on a similar role. More significantly these spaces act as metaphorical thresholds in the narrative of characters. Bakhtin suggests these thresholds 'are the main places of action in those works, places where…events occur…decisions that determine the whole life of a (person).'[34] Intrinsic to this is the expansive potential of a threshold, prompting us to step outside of our normative ways of thinking,[35] (re)identifying ourselves and others.

One example, drawn from our study, illustrates this expansive potential and how even a simple intervention can act as a threshold. One local resident engaged in guerrilla gardening, putting in place flowers and greenery in various "cracks" in the external built fabric of Stonehouse. These plantings prompted new connectivities to place for other residents, giving them reason not only to enjoy these plantings but also to take greater notice of the place into which these plantings were inserted. The juxtaposition of the flowers and the built fabric put each into relief, making them more present in the minds of passers-by.

Equally significant were the conversations prompted as this guerrilla gardener was approached by residents while planting. In the ensuing conversations passersby expressed their surprise and delight at encountering the plantings, and of seeing that particular place in a new way. Through these conversations, the guerrilla gardener and passersby made contact with each other, generating new connections where none had previously existed. Concurrently each was exposed new perspectives revealed by the other.

Figure 3. Guerrilla gardening in Stonehouse as a threshold of encounter. Image: L. Dinning.

Present within such interactions is the opportunity to see not only others and place a new, but equally themselves oneself anew. Such potential recognizes arguments present with both contact theory and

discourse on self-other relations[36] which understands how through contact with other our own selves are represented to us. While such potential is intimated in our research, further work is needed to explore more deeply this potential and its possibility within our identified threshold sites of encounter.

CONCLUSION

Paul Simon's and Art Garfunkel's 'The 59th Bridge Street Song' of course told us all of this way back in 1966:

"Slow down, you move too fast
You got to make the morning last
Just kicking down the cobblestones
Looking for fun and feeling groovy"[37]

These lines set out a paradigm for urban living. Implicit is a message we have communicated here; that time is not of the essence for urban structure. Yes, Simon and Garfunkel are encouraging us to move more slowly, but that is not the main message; rather, we posit that the song's primary message is expressed in the last line of the refrain of *looking for fun and feeling groovy*. While groovy came to be known in the 1950s, 1960s, and 1970s as something fashionable and more generally as excellent, its origins lie in the 1930s, "when musicians were said to be in a focused state of mind while playing."[38] Simon and Garfunkel's use of groovy evokes this sense of focus– i.e., of being connected

The journey in our thinking articulated here has been an act of connecting in its own way. We approached our research expecting to find people concerned about the location of proposed new health centre owing to its spatial and temporal distance from where they live; these expectations were grounded in our awareness of the significant in planning discourse of pedestrian sheds of a 5 or 10 minute walk (the latter as *the 15 Minute City*). Emergent however from our investigation was not an emphasis on distance and time, but rather on the quality of the journey both spatially and experientially. What was most significant to respondents is journeys that enable a connectivity to place and others. Such sensibilities establish a ground on which we can imagine a more livable city.

NOTES

[1] Carolos Moreno et al. 'Introducing the "15-Minute City": Sustainability, Resilience and Place Identity in Future Post-Pandemic Cities,' Smart Cities 4, no. 1 (2021): 93–111. doi: 10.3390/smartcities4010006.

[2] For example, see: Ray Hutchinson., ed. "New Urbanism." *Encyclopedia of Urban Studies*. Sage, 2010. doi: https://doi.org/10.4135/9781412971973; Charles Montgomery, *Happy City – Transforming our lives through urban design* (Penguin Books, 2013); Paul Tranter and Rodney Tolley, *Slow Cities - Conquering our speed addiction for health and sustainability* (Amsterdam: Elsevier, 2020).

[3] Based on the offer of funding afforded through the NHS's Cavell Program for to fund six super health and wellbeing hubs as pilots across the UK, detailed plans were developed (William Telford, "Detailed plans show how Plymouth's £25m health hub will transform city centre," Business Live, 12 November, 2021.

https:www.business-live.co.uk/economic-development/details-plans-show'how-plymouths-22148433.

Subsequently, the NHS called for work on all Cavell Centres to stop in March 2023 (William Telford, "Blow for Plymouth as NHS scraps health hub due to lack of cash," Business Live, 24 March, 2023,

https://www.plymouthherald.co.uk/news/plymouth-news/blow-plymouth-nhs-scraps-health-8281766.

Most recently it has been announced that a proposed new city centre health facility (focusing on diagnostics) is now being explored (Plymouth.gov.uk, "New health facility for the West End back on the table" (2023), accessed 09 June 2023, https://www.plymouth.gov.uk/new-health-facility-west-end-back-table. Our discussion in this text focuses on the originally proposed health centre as our research was related to this.

[4] Parallel Parliament, "Super Health Hub in Plymouth City Centre," accessed 20 May 2022,

https://www.parallelparliament.co.uk/debate/2022-10-25/commons/westminster-hall/super-health-hub-in-plymouth-city-centre.

[5] Plymouth City Council a, "The Changing Causes of Poverty and Health Inequalities in Plymouth: A Public Health Perspective," accessed 27 February, 2023,

https://www.plymouth.gov.uk/sites/default/files/public_health_annual_report1516_0.pdf.

[6] Plymouth City Council b, "The Plymouth Report," Accessed 27 February, 2023,

https://www.plymouth.gov.uk/plymouth-report#:~:text=The%20Plymouth%20Report%20provides%20an,and%20opportunities%20that%20we%20face.

[7] Richard Ayres, "Connecting the Dots 1: The Adelaide Street Clinic Experience," (talk presented at Urban Dialogues: Playground Seminar Series. January 27, 2020).

[8] The government-funded National Health Service.

[9] Telford, "Detailed plans show how Plymouth's £25m health hub will transform city centre."

[10] See for example: Robert Steuteville, "Great idea: pedestrian shed and the 5-minute walk," Public Square, 7 February, 2017, https://www.cnu.org/publicsquare/2017/02/07/great-idea-pedestrian-shed-and-5-minute-walk.

[11] Moreno et al., 'Introducing the "15-Minute City": Sustainability, Resilience and Place Identity in Future Post-Pandemic Cities.'.

[12] Judith Bell, *Doing your research project: a guide for first-time researchers in education and social science* (Philadelphia: Open University Press, 1999).

[13] Barbara Hardy, cited in Ruth Finnegan, *Tales of the City – A Study of Narrative and Urban Life* (Cambridge: Cambridge University, 1998), 1.

[14] Kevin Lynch, *The Image of the City* (Cambridge: The MIT Press, 1960).

[15] Frederick Jameson, "Cognitive Mapping," in *Poetics/Politics – Radical Aesthetics for the Classroom,* ed. Amitava Kumar, (New York: St. Martin's Press, 1999) 155-171; Jack Nasar, *The Evaluative Image of the City* (London: Sage, 1998).

[16] See:

https://www.google.com/search?q=15+minute+city+&ei=qO-KZMN50pGFsg_a6J_YBA&ved=0ahUKEwjD7fX6j8X_AhXSSEEAHVr0B0sQ4dUDCBA&oq=15+minute+city+&gs_lcp=Cgxnd3Mtd2l6LXNlcnAQDDIICAAQigUQkQIyBQgAEIAEMggIABCKBRCRAjIICAAQigUQkQIyCAgAEIoFEJECMggIABCKBRCRAjIFCAAQgAQyBwgAEIoFEMyBwgAEIoFEMyBQgAEIAEOgoIABBHENYEELADSgQIQRgAUKsEWKsEYO4QaAFwAXgAgAGAHkAYgB5AGSAQMyLTGYAQCgAQHAAQHIAQg&sclient=gws-wiz-serp.

[17] Andres Duany and Robert Steuteville, "Defining the 15-minute city," Public Square, 8 Februrary, 2021, https://www.cnu.org/publicsquare/2021/02/08/defining-15-minute-city.

[18] See for example: Jonny Anstead, "The 15-minute city is something worth fighting for," The Architects' Journal. March 13, 2023, accessed April 15, 2023, https://www.architectsjournal.co.uk/news/opinion/the-15-minute-city-is-something-worth-fighting-for?eea=*EEA*&eea=djRjbXB3djYcG9DbDdGTHoxbmg0TFJZdmViamxwwN001WnZ4OTE3UmtUaz0%3D&utm_

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INDUSTRIAL DESIGN AND URBAN SPACES: CATERING TO SOCIAL AMENITY IN RESPONSE TO URBAN INTENSIFICATION IN PŌNEKE WELLINGTON

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INTRODUCTION

In Te Whanganui-a-Tara, Wellington, the capital of Aotearoa. urban intensification is resulting in smaller living spaces and private outdoor areas. City privatization and urban intensification de-prioritizes public space and disproportionately disadvantages those who rely on it daily. It is critical that public amenities grow alongside this residential intensification, to off-set reduction in private space whilst also reclaiming cultural narratives for Māori (the indigenous people of Aotearoa New Zealand) and honoring Te Tiriti o Waitangi. This research proposes new possibilities for industrial design interventions that support and foster a cultural shift toward social inhabitation of urban spaces, that better meet the needs of communities in Wellington. Three provocations are proposed for rethinking the social potential of public space: a raranga or weaving space, a community kitchen, and an Open Air community laundry drying space.

Aotearoa, New Zealand and Te Tiriti o Waitangi, The Treaty of Waitangi

Aotearoa is situated in the middle of the South-West Pacific Ocean. Aotearoa was settled by Māori, voyagers from the Pacific, around the 13th century. Europeans started regularly visiting and living in Aotearoa in the late 18th Century, establishing small settlements. Eventually Great Britain colonised the country, when 'New Zealand' became an official colony of the crown in 1840 with the signing of Te Tiriti o Waitangi - the Treaty of Waitangi.[1]

Te Tiriti o Waitangi or The Treaty of Waitangi, is considered the founding document of New Zealand. It documents the agreement between representatives of the British Crown and of Māori iwi (tribes) and hapū (sub-tribes). The treaty is problematic, because the versions in te reo Māori and English were different in the meaning inflected by certain words used. Most significantly where the English version claimed sovereignty for the crown, but this word was translated as 'kawanatanga' in te reo means governorship —a very different concept.[2] Māori understood it as the crown governing over British settlers, not as having full sovereignty over Māori whenua (land).

The treaty outlined three key articles commonly referred to as the governance article, the property article, and the equity article.[3] Many harms have been done to Māori through colonisation, with the Crown not upholding these key principles of the treaty, through stealing land and engaging in war. Like so many countries, the legacy of colonisation has produced inequity for our indigenous people across health, welfare, wealth, property ownership, education and incarceration.[4]

The treaty is relevant to this research because we are discussing how intensely we dwell on land that has contested and problematic histories of ownership. Urban intensification must work to protect the vulnerable natural environment of Aotearoa, already grievously harmed by colonisation. Within this conversation, our culture of socialising and belonging in public space must shift towards a life more publicly lived which resonates with a pre-colonial Māori way of sharing space in their kāinga (village communities), to work towards equity and agency for all New Zealanders in our rights to public space.

Quarter Acre Block, Mid Century Suburbia in Aotearoa

Like many countries around the world Aotearoa New Zealand is becoming increasingly urbanised. Aotearoa's relatively low population density has meant that our urban centers have been building out rather than up. Whilst there is still much debate around intensification policies, we have seen increased central government directives to intensify the existing urban fabric rather than expanding the urban rural boundary.[5]

Suburbanisation boomed In Aotearoa in the 20th century, particularly in the post-war period, as new suburbs were developed. The 'quarter acre block' section became the catch cry of the suburban dream.[6] Although our suburban sections sizes have been shrinking in recent times, the legacy of the suburban dream still prevails and shapes cultural expectations of how people socialise and spend time outdoors. For instance, there is a prevailing narrative in Aotearoa that social time outdoors for activities like birthday parties and BBQs is something that happens in private backyards, rather than in public parks, squares or piazzas.

This presents an opportunity to adapt the current urban built environment to facilitate a long-term cultural shift from 'a quarter acre paradise' to a 'life more publicly lived.'

Te Whanganui-a-Tara, Wellington

Te Whanganui-a-Tara, Wellington, the capital city of Aotearoa is on the South Coast of the North Island and Te Moana o Raukawa, the Cook Straight. This means weather conditions are harsh as wind is channelled through the main gap between the mountains that run the length of the country. Wellington is hilly and mountainous, and the surrounding hilltops have been cultivated to protect the ridgelines with native bush, forming a green belt. These surrounding natural features have made Wellington CBD more intensified and contained as an urban center. However, they have not prevented the residential urban sprawl as shown in Figure 1.

The chosen site for this project is Newtown —a vibrant suburb at the southern end of the city fringe of Wellington. It has a dynamic arts scene and is home to a diverse demographic including refugee communities, Māori, Pacifica, whānau (families) and students. It was specifically chosen to enable the research to work with historically marginalised communities.

Figure 1. Aerial view of Te Whanganui-a-Tara Wellington, New Zealand. Daniels, Wellington Central Business District

Wellington's Public Spaces

The transition to encouraging all residents to spend more time in public spaces begins with discovering how Te Whanganui-a-Tara, Wellington currently uses public space. After an exploration of public life in Wellington, it became clear that the lack of physical amenities such as weather shelter and public bathrooms are contributing to decreased engagement with public space as seen in Figure 2. However, wider economic and cultural implications embedded within the processes and design of public spaces are more greatly affecting engagement with public space. The privatisation of public space means de-prioritising care and consideration of the economic and physical needs of those on the margins who rely on public space for daily life is a larger barrier to engagement.

Aspects of public space in Te Whanganui-a-Tara that are catering to the needs of the community include sharing necessary amenities, such as wasted food redistribution organisations like The Free Store, a tools sharing shed in the Newtown Park, and community gardens. These public spaces are multi-use spaces with interpretive programs, meaning people can contribute and experience the public space in an active way as an alternative to looking or sitting.

This analysis illuminated an opportunity to implement these beautiful aspects already facilitating public life into more visible spaces, to be made available for everyone's everyday life.
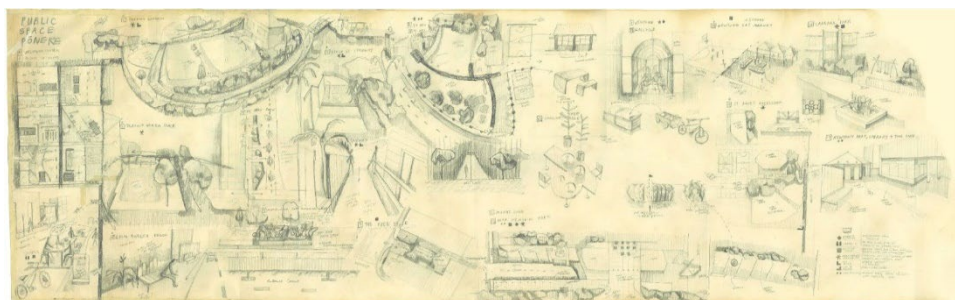
Figure 2. Pencil drawings of Te Whanganui-a-Tara, Wellington's public spaces on wallpaper (51 x 2420mm)

Research Framework

Te Whanganui-a-Tara, Wellington requires a cultural shift in the way people engage with public space. This research proposes three provocations to rethink the social potential of public space: a Raranga (weaving) space, a Community kitchen, and an Open Air community laundry drying space. The project centres the cultural and social needs of users and communities in order to enrich and transform urban environments.

Firstly, the Raranga Space is a place to practice the Māori art practice of weaving. Tangata whenua - indigenous people of Aotearoa have been forced out of urban centres and this space provokes the reclamation of land in city centres for indigenous practices. It offers up a way for Māori spaces to be prioritised in the designing of future public spaces.

Secondly, the Outdoor Community Kitchen is an industrial design approach to shared amenity in public space. It is underpinned by indigenous knowledge and values (Tikanga Māori) by promoting manaakitanga or generous hospitality, as a response to the issue of smaller living spaces. It provides an essential amenity for those who need to access a kitchen, and an opportunity for wider sharing and neighbourhood flourishing.

Thirdly, the Open Air Laundry is a provocation responding to the need for shared amenity to grow alongside city intensification. It aims to shift societal understanding of the way intensified urban centres can service all aspects of life, playing with the tension between private and public life, by creating a space for literally 'airing one's laundry' (but clean, not dirty) in public.

RARANGA (WEAVING) SPACE

The Raranga Space reclaims cultural identity and practices in public space. Raranga is a traditional Māori weaving practice, mostly done with the muka (fibres) of the harakeke.[7] Harakeke is woven to create kākahu (clothing), whāriki (mats), korowai (cloaks), kete (bags), and rourou (food baskets).[8] This practice is mostly done by women. It is an intergenerational activity, where weavers sit on the floor and learn from kaumātua (elders), see Figure 3.

The Raranga Space is reclaiming space for Māori, specifically as wāhine Māori, or Māori women centric spaces, for social connectivity in the city. Many Māori were forcibly displaced from their whenua, their land after colonisation in 1840, and pushed out of city centres. Land is taonga to Māori, a sacred treasure that provides all the things necessary for life.[9] Reclaiming central city land for kaupapa Māori, it draws attention to the need to surface how we design on stolen land in Aotearoa.

The flexible program means other other kaupapa Māori can occur, for example, teaching Te Reo Māori, waiata (Māori songs), tīkanga (Māori customs), or star navigation at night through the transparent corrugated roof. There is a parallel program of woven trampolines, surrounding the space, for children to be entertained while parents' weave. The trampolines are used in the Kōrimurimu Auckland development designed by Tessa Harris and Isthmus Architecture.[10]

Figure 3. Raranga (weaving) space surrounded by a pā harakeke (planting of harakeke) in Mercy Park, Newtown

Raranga Space Site

The proposed Raranga space is located in Mercy Park, in Newtown, an inner city suburb of Wellington. Mercy park is next to St Anne's church, the Māori Catholic primary school and is a thoroughfare to the back entrance of Newtown Primary School - which hosts a busy farmers market on Saturdays.

Newtown is on the Wellington city fringe, has a public hospital, a high proportion of public housing, and high cultural diversity with Māori, Pacifika, refugee and immigrant populations. There has recently been a change in planning overlays increasing the height limit to six stories to support housing intensification. This space offers an opportunity to increase visibility of Te Ao Māori, the Māori world. There is opportunity to connect with the adjacent schools - St Anne's Māori Catholic Primary School and Newtown School can use the Raranga Space during the school day and support cultivation of the pā harakeke, planting of harakeke. Pā harakeke contain multiple cultivars, or different types of harakeke are essential for different kinds of raranga. In the centre is a box for drying harakeke or muka as it is cut from the Pā harakeke, as shown in Figure 4. Also, both adjacent schools are championing kaupapa Māori and have Māori streams of Te Reo - Māori language. This supports the vision of the Raranga Space, to be a bold expression of Māori occupation in the city by providing non-privatised places to facilitate a shared existence.
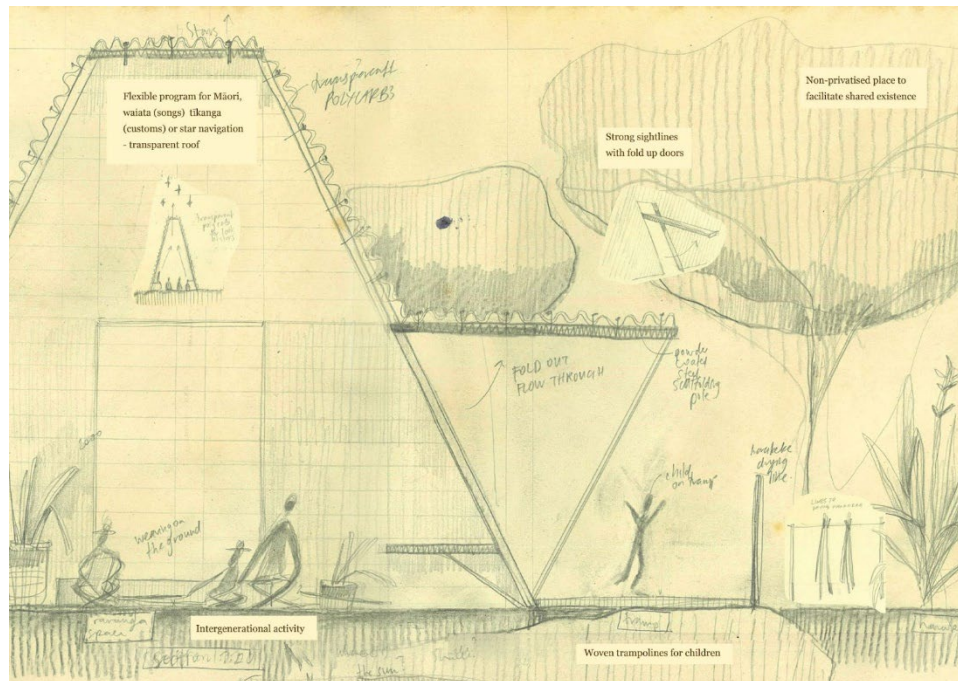
Figure 4. Raranga Space functions

COMMUNAL KITCHEN

The Outdoor Kitchen exemplifies the integral nature of manaakitanga (generosity) to underpin design decisions in the shift of urban intensification. This design is guided by the tīkanga Māori value of manaakitanga - the te reo Māori word for showing hospitality, kindness, and generosity towards others. Eating together is a radically unifying act for togetherness. The kitchen aims to foster an inclusive and accessible social place for sharing space, food, recipes, and conversation that allows for intergenerational interaction, see Figure 5. Sharing amenity does not have to be a compromise, rather a way to facilitate a lower carbon existence and shared life.

Some people rely on shared amenities in public spaces for everyday life. People that are unhoused, support workers who cannot return home to use the bathroom, workers on their lunch breaks need generous public spaces that provide more than the bare minimum. This kitchen is intended to be used by a range of people to meet daily needs and provide space for celebration and connection.

The kitchen has simple facilities - a deep sink, shared hand soap, a cooking plate and bench space. The shared kitchen does not provide the same facilities as a regular kitchen - however people have ample amenity to cook simple dishes. The four sections allow everyone at the table to have their own space, yet simultaneously converse easily for increased social connection. There is a corrugated plastic cover so the table can be used in all weather conditions.
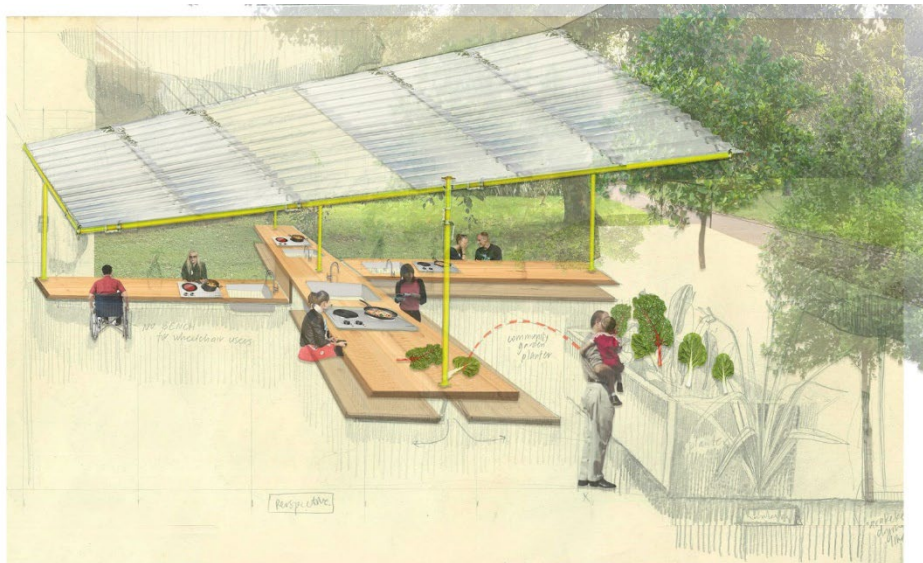
Figure 5. Communal Kitchen in Carrara Park, Newtown

Communal Kitchen Site

The proposed communal kitchen is located in Carrara Park in Newtown, which is a well-used small park tucked behind residences, but near to the main street, which has existing facilities such as a BBQ, community planter gardens, and a new playground but notably, no public bathrooms. It has a large, undeveloped and unused swathe of grass along its northern edge as seen in Figure 6. It is often used as a shortcut between residential streets. Being located next to the community garden means the vegetables and herbs can be used in cooking. A communal kitchen space, along with bathroom facilities, will support people to spend more time in the park.

This provocation exemplifies the way manaakitanga (generosity) can foster a shared existence that can multiply generosity. Generous spaces create generous people.
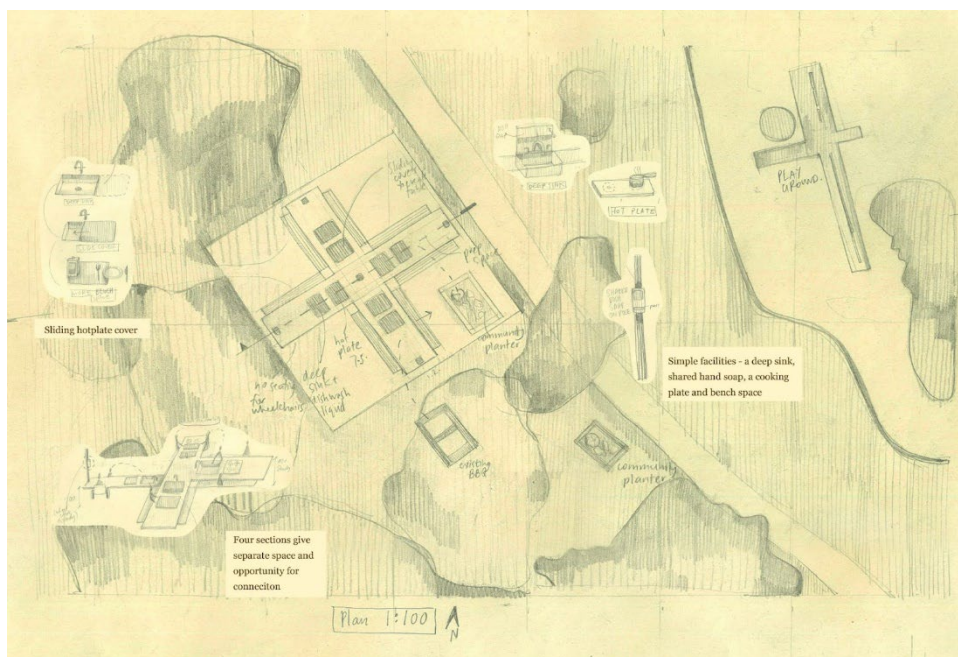
Figure 6. Communal Kitchen functions

OPEN AIR LAUNDRY

The Open Air Laundry is a social provocation for moving our practices of private life into the public. Doing your laundry in public spaces is surprising. This would be a vulnerable exercise for the average New Zealander. However, the next generation of New Zealanders will not live in suburban houses like the ones they grew up in - they will live in apartments without owning personal washing machines and drying lines.[11] We need shared amenity to grow alongside intensification in urban centres. Tactical urbanism is an ideal medium for facilitating this shift. The low cost, quick assembly and disassembly approach allows for experimentation, see Figure 7.

The use of structural scaffolding poles for the washing line infrastructure gives an interpretive use as climbing frames, monkey bars, or exercise equipment. The three sections of washing lines allow washing lines to be used effectively at all times of the day. The washing lines are on a hill and slope upwards meaning that the retractable coil can be locked. Each line has a bench forming a central point for social connectivity while washing dries as shown in Figure 8. It gives opportunity for increased neighbourhood interaction born from the simple act of drying washing.

Figure 7. Open Air Laundry at Hanson St & John St, Newtown

Open Air Laundry Site

The Open Air laundry is located at the intersection of Hansen St and John St in Newtown, across the street from a laundromat. People can walk their washing over the street to dry.

This design draws attention to the domestic labour of women in the household. It foregrounds whānau - families who rely on public shared amenities and confronts cultural assumptions New Zealanders hold in relation to class and reliance on shared amenity. Confronting these stigmas is essential before moving forward with future public space design in Aotearoa.

Figure 8. Open Air Laundry functions

CONCLUSION

This project is a creative commitment to people and generosity. The explorative and flexible spatial programs are a form of collective care and rethink the social potential of public space. People are invited into the public realm to do things usually confined within the private home, aiming to provoke a public shift in mindset and habits. Intensified urban centres can provide necessary amenities to meet the needs of daily life by functioning more effectively than the current programs we use it for. Amenity, services, play, connection. A feminist thread surfaces throughout the work, drawing attention to wāhine Māori and the domestic role of women in the home - through cooking and washing. The Raranga Space reclaims central urban land for practices within Te Ao Māori, the Māori world. It foregrounds the need for Māori and wāhine/women centric spaces in the central city as we intensify. The Outdoor Kitchen foregrounds the role of tīkanga Māori through manaakitanga or generosity providing a foundation for the way we design essential shared amenity to foster social connection in our future public spaces. The Open Air Laundry is a provocation for moving our private life into the public as a response to the need for shared amenity to grow alongside city intensification.

In Aotearoa, we must change the way we share life together outside our private homes. To do this well, we require a cultural shift rather than new public space design. We must adapt the spaces we currently have, through tactical urbanism with rapid and low-cost placemaking. Rather than a long-term studio design process, exploring how communities respond to temporary adaptations to public space will facilitate a behavioural shift. Once this shift feels comfortable, public spaces can be designed differently in the long term, to reclaim cultural narratives and for neighbourhood connections to flourish.

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AN EXPLORATION OF PUBLIC PERCEPTIONS OF PLACE CHARACTER IN THE PATHURIAGHATA NEIGHBORHOOD OF KOLKATA, INDIA

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CHANGING PLACE CHARACTER IN HISTORIC CITIES

People living in one location for a considerable period of time often form what has been termed 'place attachments' to those locations and their associated features.[1] In historic cities continuously inhabited by generations of people, long-time residents interact with the landscape settings, associating meanings, uses, and values to different landscape features to form person-place bonds, such that these features in the landscape become integral to their own sense of personal identity— Proshanky has termed this as 'person-place identity'[2] since it conveys the person's own aspect of individual identity that gets mediated by the physical environment and the meanings and values associated with particular places and associated features to which they have become attached.[3] In this way certain features in the landscape can serve as perceptual cues[4] that remind residents of where they belong and who they are and can become ingrained as their 'place-memory'.[5] As early as 1925 it was suggested by Maurice Halbwachs that landscape features in a place are not remembered in isolation, but together as 'collective memory' of a landscape setting.[6] Groups of people residing in one place for long periods of time can share similar memories and person-place bonds that give rise to 'cultural memories'[7] allowing the 'concretion of identity' of a place to occur. This is experienced as the distinctive 'feel' or 'character' of a place as expressed by its landscape and associated place features, people, history, and ways of life.[8] In the case of any historic city, historical urban patinas collage together[9] conveying place identity through cultural memory that is often of heritage value and an important resource for sustaining good quality of life.[10] Natural and cultural (tangible and intangible) heritages[11] support the livability of residents through providing sustainable local economies, traditional livelihoods, use of local resources in traditional arts and crafts, and environment-friendly methods of construction.[12] According to the ICOMOS Burra Charter 1999 "*places of cultural significance enrich people's lives, often providing a deep and inspirational sense of connection to community and landscape, to the past and to lived experiences*"; this charter further suggests that changes to such places should entail "*as little as possible so that its cultural significance is retained.*"[13]

Change in place character and Livability

Globalization over the last few decades has influenced changes in technology, social needs, and overall lifestyle, leading to the addition of new infrastructure and changing of age-old landscapes in historic cities. Such urban transformations are more pronounced in historic settlements, particularly in

developing nations that often lack the resources to preserve features contributing to place identities and local residents' sense of belonging. [14] India is a country that is rapidly urbanizing yet has some of the oldest continuously inhabited human settlements on Earth containing rich cultural heritage. At present these settlements are severely pressurized by growing populations, and economic inequities leading to their rapid urban transformations and largely impacting their respective identities— in many cases, the demolition of old structures to accommodate new infrastructure has significantly ruptured age-old images of historic cities upheld by the residents as place memory and identity.[15] Traditional ways of life are being overridden by global culture that is often contextually non-responsive and is hence unsustainable. The conflict between new development and heritage conservation in these cities threatens livability and overall sustainable development.[16] In 2011, UNESCO formulated the Historic Urban Landscape (HUL) approach which addresses the issue of sustainable development of places of cultural significance[17]— it supports development that is balanced through the incorporation of new infrastructure that responds to future needs while not letting go of the historic fabric that invokes cultural memories accumulated through the past. [18] The aim is to maintain the livability of historic urban settlements while adapting to new ways of life and also sustaining traditional landscapes and lifestyles.[19]

PUBLIC PERCEPTIONS OF THE LIVABILITY OF HISTORIC CITIES

Assessing the livability of historic cities has become a hot topic of research in recent times. In the global livability rankings published by the Economist Intelligence Unit (EIU), historic cities such as Vienna, Copenhagen, and Amsterdam, to name just a few, have consistently been ranked among the most livable cities in the world for over a decade.[20] Much of the research in this area is concerned with investigating the factors that make some historic cities so livable.

Factors for livability assessment

The EIU identifies the most salient factors in assessing livability: stability, healthcare, culture and environment, education, and infrastructure. Historic cities significantly contribute to the 'culture and environment' factor thereby improving the livability of these places. The notion of livability may also be assessed through the Quality of Life (QOL) measures. According to the statistics published by the European Union, [21] there are '8+1 dimensions' identified for undertaking QOL assessments:

(i) material living conditions (income, consumption, and material conditions)
(ii) productive/ main activity (employment and unpaid work)
(iii) health (physical and mental)
(iv) education
(v) leisure and social interactions
(vi) economic and physical safety
(vii) governance and basic rights
(viii) natural and living environment
(ix) overall experience of life

Among these, the factor addressing 'leisure and social interactions' has been based on social and cultural participation data, while the factor addressing 'overall experience of life' has 'eudaemonics' (perception of meaning and purpose in life) as a sub-dimension— cultural heritage in historic cities contributes significantly to these two dimensions thereby enhancing the quality of life and overall livability. A variety of approaches for assessing livability have been developed over the past few years including (i) studying the subjective/qualitative dimensions based on human perceptions and preferences, (ii) analyzing social and demographic statistics viz employment, crime rates, etc., (iii) quantitative analysis for various types of data through empirical research, and (iv) studying urban

design elements that contribute to or impact on the residents' quality of life. The common factor underpinning all these approaches is the study of human behavior and preferences.[22] Kamp et al. argue, for example, that the concepts of livability, sustainability, and the quality and character of places overlap in the sense that they all involve the relationship between the inhabitants and the environments that they inhabit.[23] According to this model, the livability of a place has both objective and subjective components.[24] The objective components include environmental quality factors that are typically devoid of consideration of the human experience of places being assessed. In this approach factors such as pollution levels, noise, built densities, the percentage area of open and public spaces, and other objective and measurable factors are assessed. The subjective component, on the other hand, refers to the perceptions and experiences of people inhabiting the place and their respective individual experiences of their local environments. The objective factor deals more with the physical environment while the subjective factor is more concerned with people's experiences of the environment. Continuously inhabited historic cities and their neighborhoods will often accumulate layers of cultural meanings that hold memories for their inhabitants[25] that are instrumental in conveying a sense of belonging, and identity and fostering place attachments, while in the process, enriching the subjective component of the livability of those places.[26]

Cultural heritage enhancing livability

By studying the perceptions and experiences of people living in historic cities an understanding of an important aspect of the livability of those places can be assessed.[27] The cultural heritage management of such cities and their historic neighborhoods is seldom considered as impacting on the livability of those places. Yet, the influence of cultural heritage conservation can have a very positive effect of affirming people's identity, and sense of their personal values in the context of their everyday engagements with their local environments, which in turn contributes to their livability.[28] The study of the public's perceptions of features in their everyday landscapes that support the meanings, values, and experiences associated with particular heritage spaces and landscape features, can also make those places more livable [29]— empirical studies designed to capture public opinion[30] of a historic place may also inform on the factors and conditions that people who are long residents or associated with the same place consider as determinants of livability in the same context.[31] It must also be recognized that the notion of livability is fluid because the perception of livability largely relies on an individual's lived experience of a place — due to this, standards of livability may vary with changes in time and geography.[32] It is hence important to survey public perception of a particular historic site at a particular time to study people's understanding and opinion on livability in the concerned spatiotemporal context. This paper discusses a study that explored the public perception of 'character' of the historic neighborhood of Pathuriaghata in the city of Kolkata in India. The findings reveal the meanings and values that the residents of the neighborhood attach to features and characteristics important to the urban cultural heritage of this place.

THE CASE OF THE HISTORIC PATHURIAGHATA NEIGHBORHOOD OF KOLKATA, INDIA

Pathuriaghata is a neighborhood located in the northern part of the city of Kolkata in India along the eastern banks of River Hooghly [33] — it roughly covers the locality under ward no. 24 of the overall area administered by the Kolkata Municipal Corporation (KMC).[34] The neighborhood stretches from Rabindra Sarani (previously known as Chitpur Road) on the east to the river on the west and from Vivekananda Road (also known as Kali Krishna Tagore Street) in the south to Nimtala Ghat Street in the north. The geographical extents od Pathuriaghata is shown in Figure 1.

Figure 1. Satellite map highlighting neighborhood of Pathuriaghata (Source: Google Earth)

Brief history

Pathuriaghata possesses an urban fabric associated with the Chitpur area [35] of the Sutanuti district that dates back more than 300 years when Calcutta was first established as a city by the British East India Company in 1690 and later became the capital of the British Raj.[36] Along with the villages of Gobindapur and Kalikata to the south, Sutanuti (Bengali. 'suta' meaning 'thread' and 'nuti' meaning 'village'), a humble weaver's village were chosen by the British East India Company to form the city of Calcutta.[37] The local inhabiting communities of Gobindapur comprising of landlord aristocrats called *'Babu'*-s with social titles like the 'Seth'-s, 'Banik'-s, 'Basak'-s, 'Ghosh'-s, and 'Mullick'-s were requested by the British to settle in Sutanuti to the north so that the land in the south could be cleared for building Fort William— the land immediately to the north of the fort was cleared of trees to make vast open green fields called the 'Maidan'. To the north of the Maidan area, the British built their own residential quarter which was known as the White Town— here the buildings were characterized by the European Baroque architectural style that was in vogue in Britain at the time.[38] To the north of the White Town was an area known as the Black Town that was inhabited by the local indigenous population. The Babu-s were rich and powerful and desired to place themselves on par with their British colonizers with respect to their grandeur, sophistication, and artistic preferences.[39] These rich Indians engaged masons and craftsmen, originally employed by the British for Building the White Town, to make them palatial residences, which were called 'Rajbari'-s (in Bengali, 'raj' means 'royal' and 'bari' means 'residence') in the Black Town.[40] These Rajbari-s were designed in European styles of the time while incorporating local artistic interpretations of nature and indigenous culture, which resulted in the birth of a new Indo-European architectural style known as Bengal Baroque [41] that was strongly associated with the urban character of the Bengal Renaissance in the eighteenth century. [42]

Pathuriaghata was home to families of many Babu-s who played a significant role in defining the cultural identity of the place as conveyed through their lifestyles, expressions of their wealth, and their contribution to society [43]— they became freethinkers and proponents of the Brahmo Movement in the nineteenth century which culminated in the Swaraj Movement or the struggle for independence of India from British rule. [44] While the movement instilled in local people awareness of their cultural roots, it also instigated widespread hatred against European culture leading to mass vandalism of European properties. Many of the Rajbari-s and other properties possessing European expressions were damaged during this period. [45]

Post-independence to present day

After independence, India was partitioned into West Pakistan (present-day Pakistan) and East Pakistan (present-day Bangladesh), and India.[46] The state of Bengal was divided into West Bengal, which remained in India, and East Bengal, which became East Pakistan and later, Bangladesh.[47] The partition witnesses a huge influx of refugees overnight across the border, many of whom settled in the historic city-core of Kolkata seeking better opportunities for livelihood.[48] Squatters sprouted along streets and corners of neighborhoods like Pathuriaghata that witnessed immense poverty and riots between people over castes, religions, wealth, food, and resources, leading to frequent genocides.[49] As technology progressed, new factories were set up in the southern and eastern fringes of Kolkata, while many industries that were earlier established by the British along the river shut down either due to obsolescence or lack of finances.[50] As the Zamindari Abolition Act was established in 1950, the landlords lost rights to their estates which were declared as property of the federal government, and hence they became insolvent [51] — as huge building taxes were imposed on their properties, it became financially impossible for them to sustain ownership of their large palatial residences. This led to many of them either renting out parts or entirety of their properties to wealthy businessmen— not being residents of Pathuriaghata, most of these businessmen had no place attachment or sense of belonging for these new properties which they only bought to either rent out or to create business establishments for making more money.[52] Due to lack of care and maintenance, these heritage sites witnessed disuse, misuse, and abuse and over time turned almost into slums in the historic city core.[53] Although all these led to Pathuriaghata becoming a decrepit backyard from a once prosperous and rich neighborhood in Calcutta, the people still held onto the rich roots of their cultural identities set in the past; many people in the neighborhood still consider ruins of palaces as their identities and feel proud.[54] This research paper outlines a study that was carried out to understand the local residents' perception of the neighborhood of Pathuriaghata and the meanings and histories which they associate with different elements in the landscape.

Figure 2. A present day image of Pathuriaghata (Source: Author)

RESEARCH APPROACH

This research employed a methodology using various survey techniques adapted from the discipline of environmental psychology. [55] Interviews were carried out in two stages and involved respondents who were mostly long-term residents of the area, who were selected using a snowballing sampling method. The first stage of data collection involved 106 respondents in projective-mapping interview in which they were asked to mark on a map of the overall Pathuriaghata neighborhood area, the specific area they considered to be their neighborhood and the landscape features that they felt best conveyed the character of the place as well as those features that they felt detracted from its distinctive character. Here the Bengali word for 'place character', 'sthaan baishisto/charitra' (in Bengali, 'sthaan' means 'place'; 'baishisto' means 'significance'; 'charitra' means 'character'), was used as the assessment criteria.

Figure 3. Projective mapping interview carried out by author (Source: Author)

Based on analysis of the projective maps produced from these interviews, 56 of the most frequently mentioned landscape features were selected and photographed. These photographs were printed on A5 sized cards for use as stimuli in two photo-sorting methods – Q-sort and Multiple photo-sorting methods. These photo-elicitation techniques were subsequently to interview another 50 respondents. For the Q-sort method, the respondents were asked to sort the photo-cards into 7 piles, (the photos were sorting into each of the seven piles by specific quantities - 3,7,11,14,11,7,3 to reflect a normal distribution), as originally used by Pitt and Zube.[56] The photographs in each of the piles are meant to portray graduations in the degree to which the places/features depicted in the photographs were compatible or not with the character of the place, with the first pile (Pile 1) being most compatible and the seventh pile (Pile 7) being least compatible. Analysis of the data allowed aggregated mean and standard deviation values to be calculated for each of the photographs and the words used to describe the most and least compatible places/features. The respondents were also asked to describe in words what it was that they thought made the features depicted in the three photographs they placed in piles 1 and 7 most and least compatible with the neighborhood's character. Once the respondents completed the Q-sort task, the cards were reshuffled and used to perform a Multiple photo-sorting method, which involved the respondents being asked to sort the photographs into as many piles as they desired as long as each pile contained at least two photographs with each pile depicting places and/or associated features that were in their estimation similar in some respect, for example having particular attributes or characteristics. Once a respondent had sorted all the photographs into piles, the photo identification numbers and the words they used to describe the characteristics of the places/features depicted in the piles they had created were recorded. This method generated both

quantitative similarity data in the form of photo-cooccurrences, and open-ended categorical data in the form of words.

Figure 4. Photo-sorting interviews (Source: Author)

FINDINGS AND CONCLUSION

Overlaying the maps from projective mapping interviews allowed the identification of the areas the resident respondents considered to be their neighborhood. The aggregation of the depicted neighborhood boundaries identified an area that was shared by the respondents covering a vibrant part of the overall neighborhood containing the riverfront, markets, public spaces, and Rajbari-s while leaving out areas where obsolete industries, warehouses, and other industrial features could be found.
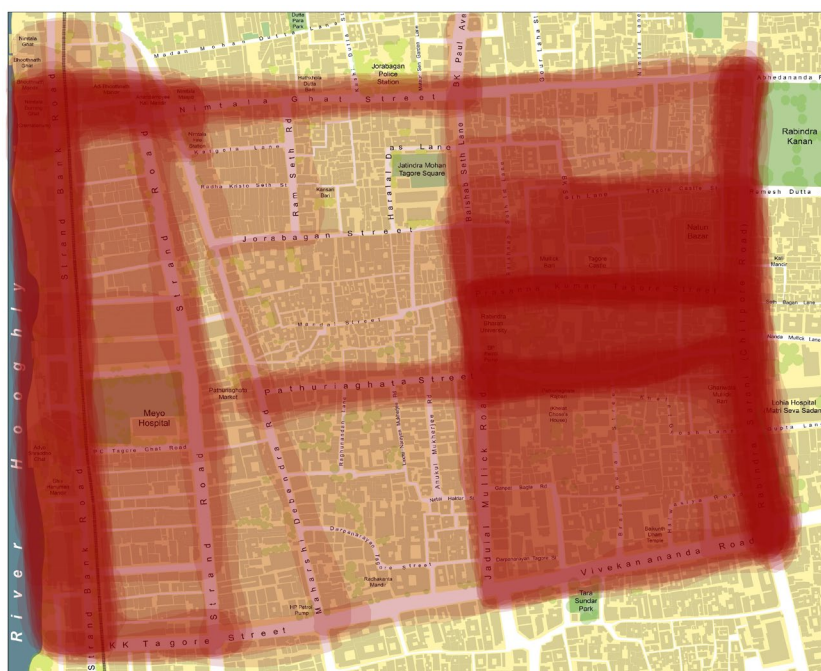
Figure 5. Resultant overlay image from projective mapping showing perceived neighborhoods— the darker patches showing the most mentioned area by respondents (Source: Author)

This perceived neighborhood area reflects the perceptions of residents and, notably, differed from that of the official administrative boundaries of that neighborhood. The result from the two photo-sorting interviews, in the form of aggregate mean scores derived from averaging all the responses and the elements in the landscape that conveyed similar meanings, histories, and characteristics as perceived by the respondents. Some of the areas that were occupied by illegal migrants that they rented out received worse scores from analysis of the photo Q-sort data while the age-old markets, Rajbari-s, and other historical features received mean scores suggesting they were perceived to be the most compatible with the character of the neighborhood. The results clearly illustrated how long-term residents were attached to certain historical features. Interestingly, many ruins of old temples and aristocratic buildings that were in a dilapidated condition were singled out as particularly characterizing the place. The photo-elicitation technique revealed meanings and histories associated with certain features that engendered in some of the older and more long-term residents, particularly sentimental associations. In contrast, the younger respondents singled out more contemporary uses of some of the same age-old public spaces, and many of them even referred to the ruin sites as play areas. This study revealed the deep meanings associated by the residents of what to outsiders would most likely be very mundane indigenous landscape features not worthy of being protected as heritage sites. Yet to the local community, these were considered valuable heritage features that should be protected to sustain the livability of the neighborhood. The results of this study demonstrate both the methodological ability of understanding the features in the landscape important to local urban heritage and associated meanings as conceptualized by the local communities and their propensity towards remembering landscape features that support the resident's quality of life that if protected could make the neighborhood also more livable for future generations.

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HOW MUCH IS DHAKA CITY FOR WOMEN? SEEING GENDER BASED CRIMES AS SPATIAL PHENOMENA

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INTRODUCTION

Dhaka is a rapidly growing megacity and the capital of Bangladesh which is located in the north-eastern part of Indian subcontinent within south Asia. Being the capital, it continues to remain the centre of national economy and its spaces evidently manifest a vision of becoming a global city with the advanced infrastructures and beautifications. However, in this race of progress, the city is disregarding its major share of users - the women - by taking their everyday struggle of space use for granted. Today, although women are increasingly coming out of the houses and actively taking part in higher education and economy besides men, their presence in the public is actually consciously performed and entails complex negotiation.[1] The reasons are varied and rather complex, however, sexual harassment (along with the fear of it) alone is one major cause that limits women's right to use public space severely.

The purpose of focusing on the issue of violence is to evoke a recognition of the 'normalized nature of violence' in women's everyday life and space usage. The aim is to ultimately advocate for an inclusive city process informed of gendered experiences. The extent of academic studies that exist in our context mostly speak of transportation safety. The specific objective of this study, on the other hand, is primarily to uncover women's negotiations throughout their everyday encounter with outdoor public spaces. Through this attempt, I also intend to deeply connect 'violence' with 'space' within the certain socio-cultural (also religious) landscape that guide our gendered (spatial) behaviour. Additionally, emphasize the possible differences between the western and southern experiences, and put forth some aspects of underlying factors of gender relations for future research.

The study adopts a mixed-method approach and findings are delineated both in forms of frequency distribution and women's narratives. The former (collected through an online questionnaire survey with 130 women) helps to corroborate the incidents of fear and negotiations, whereas the latter (gathered though a small group discussion with eight, and in-depth interviews with ten women)[2] enables an understanding of women's perception and spatial behaviour. The participants are purposively from the middle and higher middle income group belonging to an age group between 20s to 40s, educated and predominantly engaged in income generating activities; in order to uphold that women belonging to the rather privileged groups within the society are actually entailing much effort to make each day happen throughout the city. The write up in the first two sections illustrates women's experience of public space and negotiations of fear, followed by a brief depiction of the relationship among gender, space and violence, emphasizing the formation of gender construct within

the context. And finally, puts forth possible framework for future study by locating gender based crime as social production space.

WOMEN'S USE AND PERCEPTION OF (SAFE) SPACE IN THE PUBLIC

Women's encounter with public space is quite rare beyond necessity. Literature from both the west and south has showed that women's presence in the public is mainly a necessary action of commute to get essential tasks done[3] and rarely to loiter around without 'purpose'.[4] From my survey findings, 95.5% of the participants have identified 'commuting' as their main purpose of using public spaces, along with getting grocery (57%), physical exercise (22.7%), etc. Women are not in much liberty of using the public as men.[5] According to one of the participants, "After *maghrib*,[6] parents don't allow me to stay outside, whereas my younger brother can stay out as long as he wants". Another participant said, "When I hear from my male peers about their interactions with the public space and people in it, it makes me feel how deprived we are as females, and what things we are missing out". She also added, reflecting on the challenges of women's interaction with the public, "If I start being convivial to a CNG[7] driver, he may well just take me to a narrow alley".

However, a significant number of women (61.7%) have also mentioned about using different public places (Lake/park etc., also tea-stalls) for socializing and recreation. Nonetheless, 93% of participants agreed to have carried a sense of fear while travelling through certain places during certain time of the day. Also, 87.6% participants responded to have experienced harassment of some kinds (verbal 74.3%, physical, 67.3%, offensive gesture 60.2%. etc.). Across different geographies, 'Dark, poorly-lit and deserted' are commonly found spatial aspects of fear among women.[8] My findings also show that, "Dark lanes, foot-over bridges, places underneath flyovers, streets with very few people" are particular places that trigger fear. Also, experiences of fear can be temporally located during the night time mostly (63%).

Accordingly, women feel safe within others' visual range.[9] Presence of older adults, women, families, vendors or shopkeepers make women feel more secure.[10] 'Being alone' (58.1%), having only 'men' around (52.1%), and very few people around (47.9%) are similarly found to be influencing fear among my study participants. According to one, "When I used to return home on foot through a certain lane after the *maghrib*'s *azan* which used to be dark with cars parked and not many people around, I used to feel an intense sense of fear". When asked about the possible reasons, she answered, "Fear of hijacking is there, but I literally feel that someone may just abduct me".

Additionally, feeling 'discomfort' around male dominated places[11] is also common. Places such as street side tea-stalls in particular, are common part of urban fabric in Bangladesh and India (also dhabas) that are usually dominated with male presence. "When in groups, we sit and take tea and gossip yes, but not in other cases", as per an interviewee. Another one added, "The waiting places are mostly filled with men, hence, I rather wait outside". "Even there are provisions of seating at the bus stoppages, or nearby tea-stalls, women tend to keep standing away", states one participant. Feeling 'out of place'[12], in my opinion, is significant to this region; with absence of bars or pubs in the fabric of Dhaka, outdoor spaces with frequent sights of male gathering is 'unfriendly'[13], and the act of 'sitting beside a man' is rather the last resort.

WOMEN'S DAILY NEGOTIATIONS TO ENSURE PRESENCE IN THE PUBLIC

To avoid certain incidents, accommodate fear and spatial perceptions, women's daily presence in the 'public' involves varied forms of negotiations. Women are found to negotiate by 'avoiding' certain places (53.9%) and going out 'alone' during 'night' (55.6%). Particularly under-passes and foot-over bridges are found to be 'avoided' by women due to 'fear of harassment'. One of the participants stated, "The foot-over bridges have very low legibility and hence, although, crossing the streets on

foot is not right, I avoid foot-over bridges". "Usually my husband comes to pick me if I'm ever late from work", said another woman. "If it gets dark ,I usually try to move accompanied. Otherwise, I take an Uber when I'm alone", added one participant. "I always take an alternate route to my home while I'm on foot, to avoid the dark lane with few people, even if it is the longer route", according to another woman.

A majority of women avoid public bus (56.3%). According to one participant, "I never use the public bus. If I need to go distant places, I take an Uber or a CNG". Another woman stated, "I don't take bus when I'm 'alone', even though women in others' company also face harassments". "Several times, I had to rather wait too long or go on foot only to avoid buses that were empty or had very few passengers", states another. Facilities such as ride shares have provided women with more options to avail safer commute, yet, most of the participants have also mentioned about sharing locations with friends or families during their rides. Additionally, for some these are 'costly choices'. As one participant stated, "I have a friend who, due to an incident, tends to avoid buses and hence need to rely on alternate options such as ride share or CNGs, but these options are expensive; hence, mobility is reduced".

'Dress in a certain way' to avoid discomfort rising from gaze, and also to prevent any verbal abuse, is common among the study participants. Crowded places having 'diverse' users such as open markets and several particular bus-stops, and even fairs that are regularly held, are places where women consciously avoid wearing 'top' and tend to carry scarf. As a participant explained, mentioning the areas mostly resided by the higher income groups, "If I'm in those areas, suppose with friends at restaurants, I wear westerns or *fatua*, but If I am to go to places like Hawkers' market or across particular bus-stoppages, I will never dress in this way". Such practice is quite common among the women. "I usually carry a scarf in my hand bag so that I can just cover myself in required places, like in crowded places", says a participant. When asked, if practice of 'veiling' makes any differences, one responded, "I think it makes women feel 'safe' against cat-calling"; while another, practicing the custom of veil herself, said, "The way I dress, I don't think it actually matters given my experiences on the streets,".

From the survey, 6.2% were also found to carry safety tools (i.e., pepper spray or sharp objects). One of the participants used to regularly commute across a busy node where, according to her, she experienced (physical) abuse every day. "There were days I used to keep a steel-edge with me so I could make a gesture against those abusers and also use it to protect myself". Taking precautionary measures are not uncommon across geographies. Women tend to avoid parking lots, alleys, subways[14] and moving during night[15] unaccompanied.[16] However, differences exist in the physical experience of 'urban' between the west and south as 'Parking lots' and 'subways' are not common features of Dhaka's fabric. While, on the other hand, experiences of 'open markets' (i.e., New market) are also very significant to these regions.

It appears that, in order to go to a certain place depending on its location and distance, the time of the day, and also the quality of publicness, women plan ahead with conscious choice of clothing, mode of transport, and also company, etc. Gazing and verbal comments are such 'normalized reactions of women's presence in the public' that women's responses are often mistaken as 'autonomous choice'[17] defined as the 'spatial subconscious'[18], and "Too insignificant to separately identify as part of 'everyday actions'", according to a participant. The daily and normal nature of violence or the fear of it, restrict or alter women's interactions with the city, and hence, undermines women's right to use the city's spaces[19] severely.

'VIOLENCE' AT THE FORMATION OF UNEQUAL 'GENDERED SPACE'

Power relations form a central component of the constitution of spaces; and in this process, gender, inscribed via body practices, defines men as self-assured, and, women insecure,[20] legitimize violence as an act of men that a woman by nature cannot do.[21] The spatial order of 'gender' in the production of space is never otherwise, as such behaviors if carried out by women, have a different social meaning.[22] The 'cultural' construction of space, additionally, has inherent in its symbolism the legitimacy to place women at the bottom of power structure.[23] Women and men are given different understandings throughout their lives as to how to be and behave, that, through practice of social relations, norms etc., are internalized by both men and women, and becomes an inseparable component of their cultural selves that, ultimately, contribute to an imbalanced power relation between the two. This is further manifested in spatial forms and structure [24] reinforcing a 'genderization of space'.[25]

Situated at the imbalance, violence (either physical assault or even an act of gaze) against women is a manifestation of masculine domination across both public and private, however, a 'visible' form of territorial demarcation of 'gendered belongingness'[26] - of men in the 'public' and women in the 'private'. Violence, although, is more prevalent in the domestic,[27] women's fear of the public prevents their free participation in what the public has to offer.

In the context of Bengal, since history women have been holding a cultural identity of a sustainer.[28] The public-private roles as well as spaces co-exist within and beyond household units with certain entitlements[29] towards each other. This shapes the (cultural) definition of women's identities, roles and spaces associated with them. Such imagination of space is a powerful fabric of our everyday life reinscribed through our language[30] also which governs the perception of women's spatial boundary by the idioms of 'shame and honor'[31]- perceptions very significant to the sub-continent culture. The association of women's 'bodies' with their 'families' honor' makes women's sexual safety and respectable presence of the utter importance.[32] It is extremely unfortunate that, even in this era of tremendous advancement of humans' control over and beyond the earth, as if, power is more bestowed upon the socio-spatial surroundings of women than themselves to even assign meanings to their presence, forcing her to negotiate choices.

WOMEN'S FREEDOM OF PRESENCE = SAFE ENVIRONMENT + RE-HUMANIZATION

"They don't see women as humans; they see some 'females' walking down the streets"- says one participant while referring to her perception about the causes of street harassments. To quote few others about causes of harassments- "Because men are super entitled"; "They grow up knowing that they can just tease females"; "As long as objectification of women persists, these phenomena will remain normalized among both men and women's lives". When asked about measures of minimizing violence, majority of the study respondents referred to the change of mindset of 'men' and the 'socio-cultural process' which bestows upon them with certain 'entitlement'. In short, the patriarchal structure that predominates every aspect of our life. Then what role do city planning and design can play in preventing violence and increase women's safety to facilitate women's easy presence in the 'public'?

The answer to this is, that we need to conceptualize fear and violence as constructs across public-private binary,[33] discursive and physical space, as well as across academic fields, and not stress over the physical manipulation of 'built environment' alone. Design and layout can greatly encourage women to go out by enhancing sense of safety, however, informal control of the environment will only take place under certain social control.[34] A participant who is a student of architecture stated, "When I was studying Jane Jacob's 'eyes on the street', I was unable to relate cause there's always so many 'eyes' on us and yet no one actually offers to help, and instead find excuses to blame us".

Majority of the study participants' experiences conform to this. It means, even in the places otherwise defined as 'safe', how would people act or react is beyond the control of the environment and has a lot to do with the 'ordering of social relations', and also 'individual agency'[35], etc..

The 'women only' spaces in the public (bus, metro, waiting areas and even in the parks) increases women's choices to access public places, as also found among study participants, however, for an egalitarian gain it is vital that women are 'comfortable' and 'safe' to 'be around' and 'sit' beside men. Some feminists believe space can be empowering when it enables women to 'loiter'.[36] However, in my understandings, space is not supposed to empower or save 'women', rather, through the process of its everyday production, should facilitate a re-humanization[37] of gendered beings. Women are seen as properties and sexual objects. They need to be seen beyond their sexual and gender identities as participants of everyday space; and on the other hand, men need to be perceived as safe creatures. "If more identities could be assigned to both the selves", says one study participant emphasizing the need to form identities through acquaintances, "The tendency to identify oneself by sex may lessen". Increased social interactions and participations in this connection can prove to be meaningful, and can be induced by Land use and Social Planning.[38] However, in a repressive society such as ours, where male-female interactions are restricted through multiple powerful factors including religion, the challenge is manifold, and requires deeper investigations to identify avenues within the cultural-religious milieu that may permit to modify gender relations and consequent perception of gendered space, or vice versa.

CONCLUSION: HOW MUCH IS DHAKA CITY FOR ITS WOMEN?

Findings of the studies for the most parts are not unique about women's restricted presence in the public, however, its depiction is, in the scholarships based on the experiences from Bangladesh. The fear and safety measures among women associating with the 'public' is a realized phenomenon across geographies, however, the cultural (symbolic) meanings of space that largely dictate women's spatial mobility[39] may vary. The write up mainly attempted to shed light on the negotiated presence of women and situate the spatial experiences within the socio-cultural forces.

The findings suggest that, the city as a spatial construct is rather dis-empowering to its women, dominated by 'unfriendly' spaces.[40] "Once, we, three of our female friends were walking past a mosque; at one time one of us tried to peep inside, and at my disbelief, a man rushed out screaming 'devils are here'; we weren't even wearing improper clothes" as per a women's statement. Known as the city of mosques that dominate its landscape, women's presence is rather 'hostile' and 'out of place' in it. "Even within the privileged and educated society, men can't realize or care enough how it is meant for women to be in the public space", a quote from another participant depicts the picture quite clearly. It is high time we reframe and redefine our perspectives of women from 'bodies out of place' to legitimate everyday users of the city's spaces.

NOTES

[1] Kishwar Habib, Hilde Heynen, Bruno De Meulder "(Un)Covering the Face of Dhaka: Gender Politics and Public Space in the Post-Colonial City," *Environment Space Place* 6 no 2 (2014)

[2] This particular study is based on the data collected up to now. I intend to expand the study beyond the notion of safety and toward women's everyday participation in space production within the certain socio-cultural and political landscape of Dhaka's urban fabric and generate knowledge from within this context.

[3] Karen A. Frank and Lynn Paxson, "Women and Urban Public Space Research Design and Policy Issues" in Public Places and Spaces, ed. Irwin Altman and Ervin H. Zube (Boston: Springer, 1989); Tanusree Paul, "Space, Gender, and Fear of Crime: Some Explorations from Kolkata," *Gender, Technology and Development* 15 no. 3 (2011); Habib, Heynen, and Meulder "(Un)Covering"; Ranade Shilpa, "The Way She Moves: Mapping the Everyday Production of Gender-Space," *Economic and Political Weekly* 42 no. 17(2007)

[4] Ranade, "The Way She Moves"; Shilpa Pahdke, "You can be lonely in a crowd: The production of safety in Mumbai," *Indian Journal of Gender Studies* 21 no, 1 (2005)

[5] Frank and Paxson, "Women," 130.

[6] The evening prayer for the Muslims, right before dusk.

[7] 'Compressed Natural Gas' based motorized three-wheel vehicle

[8] Gill Valentine, "Women's Fear and the Design of Public Space," *Built Environment* 16 no. 4 (1990); Frank and Paxson, "Women and Urban"; Kalpana Viswanath and Surabhi Tandon Mehrotra, "Shall We Go Out? Women's Safety in Public Spaces in Delhi," *Economic and Political Weekly* 42 no. 17 (2007); Darshini Mahadevia and Saumya Lathia, "Women's Safety and Public Spaces: Lessons from the Sabarmati Riverfront, India," *Urban Planning* 4 no. 2 (2019)

[9] Valentine, "Women's Fear"; Mahadevia and Lathia, "Women's Safety".

[10] Jagori, "Is this our city? Mapping safety for women in Delhi," Delhi: Jagori (2007)

[11] Viswanath and Mehrotra, "Shall we go out?".

[12] Paul, "Space"; Ranade, "The Way She Moves".

[13] Shilpa Phadke, "Unfriendly Bodies, Hostile Cities Reflections on Loitering and Gendered Public Space," *Economic and Political Weekly* 48 no. 39 (2013).

[14] Viswanath and Mehrotra, "Shall we go out?"; Valentine, "Women's fear"; Frank and Pason, "Women and Urban".

[15] Hille Koskela, "'Bold Walk and Breakings': Women's Spatial Confidence versus Fear of Violence," Gender, Place and Culture 4 no. 3 (1997); Jennifer K. Wesely and Emily Gaarder, "The gendered "nature" of the urban outdoors: Women negotiating fear of violence," *Gender and Society* 18 (2004).

[16] Frank and Pason, "Women and Urban".

[17] Paul, "Space".

[18] Ranade, "The Way She Moves".

[19] Mahadevia and Lathia, "Women's Safety".

[20] Martina Low, "The Social Construction of Gender and Space," *European Journal of Women's Studies* 13 no. 2 (2006).

[21] Erving Goffman, "The arrangement between the sexes. *Theory and Society*, 4 (1977).

[22] Valentine, "Women's fear".

[23] Tovi Fenster, "Gender and the city: The different formation of belonging" in *A Companion to Feminist Geography*, ed. Lise Nelson and Joni Seager (Blackwell Publishing, 2005).

[24] Paul, "Space".

[25] Low, "The Social Construction".

[26] Fenster, "Gender".

[27] Carolyn Whitzman, "Stuck at the front door: Gender, fear of crime, and the challenge of creating safer space," *Environment and Planning A: Economy and Space* 39 no. 11 (2007); Rachel H. Pain, "Social geographies of women's fear of crime," *Transactions of the Institute of British Geographers* 22 no. 2 (1997).

[28] From sustenance; who upholds or maintains. In *Prosperity and misery in modern Bengal: The famine of 1943-44* published in 1982, Greenough explained this cultural image of women in the Bengal as one to be derived from the Hindu goddess of prosperity (*Lakshmi/lokhhi*) as a symbol of one who guarantees the prosperity and hence holds the honor of the family by maintaining the flow and providing necessary consumption. Explained additionally by Chatterjee (1994), due to representation of spiritual realm (*ghar*) by the women as opposed to the material realm (*bahir*), preservation of cultural distinctiveness is rested with the women. Furthermore, in Islam religion, women in forms of mothers are given the (highest) honorable position. Such symbol of honor, on the

other hand, enables a despise of those who aren't ones. These symbols are vital to our culture and gendered roles are to be understood beyond the lens of division of labor.

[29] Amartya Sen in "Poverty and Famines An essay on entitlement and deprivation" reflected on the Bengal's socio-cultural structure through the concept of 'entitlement'. According to which, within household units, women (wives/mothers) are entitled to certain services (rights) from the men (property, security etc.) whereas men (husbands/fathers) are entitled to women's services toward family and them. In this process men are culturally privileged within the power relations. This notion also agrees with Greenough's (1982) in terms of understanding gender roles through cultural relations beyond division of labor.

[30] "The conventional notions of *separate space, gendered space and women's boundary* have been institutionalized in the Bengali language in such a way that they are reflected in the conventional cultural definition of woman. Bengali synonyms for the word 'woman' include *anthopurika, puranari, purangana*, and *purabasini*; each containing the prefix *pur* or *antahpur* meaning 'home'. In contrast, women that do not belong to a conventional home are called *patita* (fallen), as well as *gonica, goneru, barbadhu, barangana, barbanita, barbilasini, or janapadbodhu - gon*, *bar* and *jan* meaning 'public' and conveying a negative connotation", see Habib, et al. 2014). Habib, Hilde Heynen, Bruno De Meulder "(Un)Covering the Face of Dhaka:

[31] Phadke, "Unfriendly Bodies"; Paul, "Space"; Viswanath and Mehrotra, "Shall we go out?";

[32] Mahadevia and Lathia, "Women's Safety".

[33] Whitzman, "Stuck at the front door".

[34] Valentine, "Women's fear".

[35] Whitzman, "Stuck at the front door".

[36] Shilpa Phadke, Shilpa Ranade, and Sameera Khan, "Why Loiter? Radical Possibilities for Gendered Dissent," In *Dissent and Cultural Resistance in Asia's Cities* ed. Melissa Butcher and Velayutham (London and New York:Routledge, 2009).

[37] Because de-humanization is already in place requiring more than humanization.

[38] Whitzman, "Stuck at the front door".

[39] Fenster, "Gender".

[40] Shilpa Phadke, "Unfriendly Bodies".

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THE HYBRID WORKSPACES IN THE "NEW NORMAL"

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INTRODUCTION

The hearth of this congress is: What makes a city livable?

Our answer to this question is: The new quality of the workplace.

Cities have historically established their identity in the workplace, transforming over time as labor relations change.

The pandemic emergency, forcing millions of people to work from home, has made Agile Working an immediate necessity with a drastic and deep change in the way of working. On the other hand, the long-forced isolation has repositioned the individual at the center of life with his desire to return to presence and normality, directing the main question on well-being, safety and quality of workspaces.

These aspects of the "new normal" lead to hybrid ways of working, which become not only one of the most interesting frontiers of workplaces, but also devices capable of determining the future layout of cities and their livability.

The social and spatial effects of hybrid work invite architectural culture to investigate its functional and formal implications, to develop ideas and tools useful in designing spaces of working.

Therefore, foremost, the research is focused on the changes between the epochal passages that have marked the transformations of workspaces and of the city itself. Secondly, it offers a possible interpretation of the experimentations and knowledge that we have on the different meanings of the hybrid workplace. Lastly, it opens the discussion on the future urban role of hybrid workplaces. An aspect that appears relevant not only for the organization of work, but also for the reorganization of cities, with potentially positive implications for the entire ecosystem.

Figure 1. Workstation in the city of Lahti

The mutations of the workspace"

Leap Point n°1

The transition from the craft world to the industrial world has caused a break in the previous social balances and has also marked the first major change in the workspace.

In pre-industrial era, work was an individual and artisanal activity, often domestic, which took place in times and in ways that were not strictly binding.

The invention of the machine has given rise to a radical change in the dynamics of production, whose cultural and social effects have been reflected on the city and its spaces.

The industrial system changes the methods of production, the forms of work organization, the social order, and the way of conceiving the spaces of production.

Urban living itself, for a long time, has been organized on the rhythms of industry, which determined the necessary regulation of social living and standard working patterns.

Rhythms of work and rest conformed, which affecting the construction of the city.

The means of production, which simultaneously involved the mass of workers at different moments of their existence, also affecting the construction of the city.

Masses of workers have been uprooted by the demands of production and their existence was marked by the negative effects of factory work.

According to industry times the concrete shape of modern society has been planned, designed and realized. The land was organized focusing on the division into social classes and the distinction of uses and activities.

Modernity marked the transition from the Gothic-mercantile city to the Great City, also bringing with it new conceptions of urban and workspaces that suggested a break with the foreshadows of the traditional city. Experiences from which the potential of the new industrial dimension emerges, valued as the identity space of modern society.

Tony Garnier, with his Cité industrielle, addresses the theme of the formal characteristics of the industrial city, enhancing its semantic characteristics.

Peter Behrens, with his AEG, represents the industrial universe as a bearer of positive values, the premise of a "new classicism".[1] The factory becomes a monument to the new business and to new working relationships.

Leap Point n°2

The second major change occurred in the late phase of the Industrial Revolution, with the affirmation of the "scientific organization of work", theorized by Taylor.

A new model of production organization based on the analysis of the tasks, with the separation between intellectual and manual activities, which finds the main icon of modernity in the Fordist factory.

Henry Ford understood and applied the potential of the Tayloristic model, generally associated with the assembly line.

He entrusted the design of his factories to Albert Khan, who developed simple and flexible systems to allow changes in the organization of work.[2]

The workspace conforms to the new model, concretely responding to the specific needs of series production.

According to Bauman, the factory walls linked the working class and capital in mutually beneficial relationships.

The Fordist factory became the universal reference model of his time, setting the standard for all other entrepreneurs.

the Italian industrial history[3], in those years, two distinct models of industry management emerged:

- the one by Agnelli, in perfect Fordist style, which finds in the Lingotto the materialization in architectural forms of consolidated working relationships, with an ascending articulation of production and the detached office building, which establishes the difference between manual work and intellectual work;

- the other one by Adriano Olivetti, who has gone beyond the Fordist model, combining modernization and humanism, condensed into the idea of "concrete community". A business model that aimed to create a union between ethics and production. The Olivetti industrial plants, scattered around the world, have been designed to improve working conditions and quality of life of workers, integrating the production space with new social and cultural uses, spaces and activities.

With Olivetti, the workspace is enriched with further qualities: common spaces, social functions, relationship with the landscape and environmental qualities.

While the separation of working activities sanctioned by Agnelli, between manuals and intellectuals, testifies to the emergence of a new form of work.

Leap Point n°3

Under the pressure of automation the dimension of intellectual work is increasingly asserting itself. Work gradually moves from factories to offices, with the emergence of the new social group of white-collar workers.

At the beginning of the 20th century, the number of employees involved in intellectual activities changed significantly compared to that of the working class.

On the theme of the birth of the new social group of white collar workers, since the middle of the '900 two different lines of thought arise : on one side the employees are considered part of the Fordist gear, with the same criticalities (C.W. Mills); on the other hand, a new dimension of work is envisaged that, going beyond Fordism, detaches itself from the traditional production process and acquires its own autonomy (F. Croner).

The "intellectual work" acquires a strategic importance becoming a structural aspect of the industrial society and its "concrete form": the city.

One of the symbolic cities of division of labor was Chicago, in which the specialized tertiary center was consolidated.

Leap Point n°4

All of this, before the second industrial revolution appeared no longer with the overwhelming images of the previous but, as Italo Calvino wrote, *"(...) like the bits of an information flow that runs on the circuits in the form of electronic impulses"*.[4]

Light images, vividly intelligent, able to overcome the heaviness and opacity of the world and to escape the slow petrification that no longer seemed to spare any aspect of life.

The new dimension of globalization has imposed a more fluid and dynamic relationship between working time and a time of life.

The spread of technological innovations has led to the deconstruction of work itself and the spaces in which it was carried out.

The recently emerged transformation of working methods had been underway for some time. Teleworking, already in the 1970s, anticipated an epochal turning-point in labor relations, that would overturn the consolidated paradigms and pulverize workspaces.

In this perspective, telecentres have been conceived as structures equipped with IT-tools and open communication technologies, usable by both companies and self-employed workers.

The dissolution of physical places in favor of information superhighways and their virtual environments had only partially occurred.

At least until the pandemic imposed the need for hybrid workspaces, accelerating the transition from "closed" work models towards the pulverization of active workers, and prefiguring new forms of working relationships and their spaces.

Figure 2. Piero della Francesca. Duca di Urbino,1465-1472;
George Grosz. Iniziativa imprenditoriale,1920; Gianni Agnelli

New Landscapes

It should be noted, however, that the age-old history of the transformation of workspaces finds a singular recurrence in the consideration of the balance of power in the representation of the protagonists: from the dominion over the rural landscape of the Duke of Urbino, represented by Piero della Francesca; to the crushing weight of the entrepreneur on the workers, denounced by George Grosz; up to Gianni Agnelli's self-celebration on the roof of the Lingotto.

Conceptions and temptations from which not even the self-representation of the new "liquid" capitalism seems to escape. While replacing concrete landscapes with digital landscapes, it appears to be firmly anchored in vertical models of work organization and control.

Both in the definition of relations with the workers and in the construction of concrete spaces.

Conversely, as we will see, the opportunities offered by the digital revolution seem to promise new work arrangements, which require new qualities of spaces shaped by the needs of workers and not just those of production.

Figure 3. New Landscapes

The characters of the hybrid space

Faced with what increasingly appears to be an epochal change in working relationships and the spaces dedicated to them, the question is: what are the qualities that will characterize these new spaces? And, as far as architecture is concerned: what are the design references in the context of a necessarily physical reality that is being more and more mediated by the digital dimension?

The new ways of working and the real needs of workers become the trigger of a new space in which different dimensions are called to coexist and hybridize: physical and digital, private and collective, operational and rest and leisure.

The workspace, therefore, is defined as hybrid because in addition to welcoming the work activity, it also reacts to other dimensions of human reality, becoming increasingly complex. In fact, surveys carried out on the needs of workers show that they want to work where they feel more productive, at ease and safe; expecting to spend most of the time in the office, but with the freedom to choose whether to work from home or from anywhere else, based on the activity at hand.

In this regard, it seems interesting to investigate the different ways in which the phenomenon is spatialized, in order to be able to recognize the new qualities required of workspaces and develop adequate design proposals. In this sense, we seize the opportunity to rethink the workspace by including unusual aspects in the performance of workers' daily activities, by bringing into play the different relationships between elements and pairs traditionally in antithesis, such as: Physical and digital, nature, artifice, shared intimacy, freedom, security, private public, proximity decentralization.

Physical-Digital

We are no longer within the modern condition in which spaces were shaped by the times of industry. We are inside another dimension: today we live in a *PHYGITAL* condition from which there is no going back. The new technologies promise an all-encompassing digital experience, which however takes place in two radically opposite dimensions:

- on one hand, the digital dimension, characterized by the liberation from space-time constraints, with virtual spaces which, however, return to assume a reassuring image reproducing the characteristics of the traditional office, of traditional workplaces;

- on the other hand, the physical dimension that requires empty (neutral) spaces, not having the freedom to move.
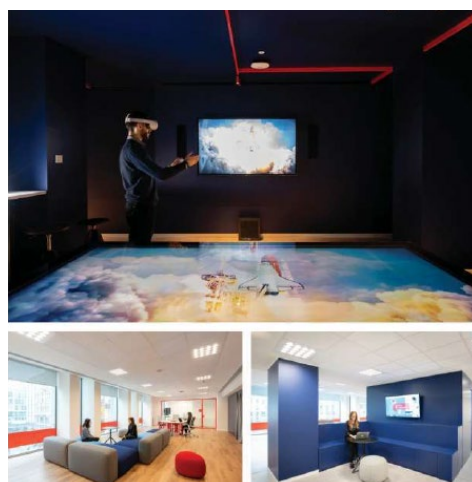
Figure 4. Physical-Digital

The virtual dimension does not require physical space quality; while the virtual space, which instead would not need physical qualities, is characterized by desks, chairs and windows with backgrounds of natural landscapes….

There is a discrepancy between the workspace proposed in the virtual dimension, traditional thus reassuring, and the physical dimension, actually, alienating. Someone tries to represent the new qualities of these spaces with answers that hold these two totally antithetical dimensions together.

In an increasingly *phygital* reality, time and space can become a resource. The body is necessarily positioned in one point, because as we know it is not alienable. Digital, on the other hand, is an extension of the human experience and allows the densification of work activity, in such way that the space can be occupied by various aspects and qualities linked to other needs of the worker.

Artifice – Nature

One of the main needs of workers is linked to well-being and comfort. The desire to reconnect with the natural world is revealed by numerous scientific researches which have shown that direct contact with nature brings numerous benefits: emotional, cognitive, an increase in creativity and productivity, it is also underlined by ordinary ways in which people express this innate need. These photographs represent the usual spaces of the common imagination, to which artistic thought is called to give meaning, in order to transform a shared and immediate need on the characteristics of the space into quality.

Figure 5. Artifice – Nature

Reconsidering the relationship between artifice and nature, the construction of the workspace must be able to welcome and introject nature and the environment in their various forms.

Aspects that Bolten[5] | Barbiero have declined into 10 themes, fixing them in a protocol of Biophilic Design. These elements can be divided into two fundamental groups which regain a link with the atavistic needs of the human being: safe habitats (Refuge) and habitats rich in resources (Procurement).

Intimate – Shared

The need for refuge reflects the necessity to have spaces for specialized activities, characterized by different degrees of intimacy, welcoming micro-environments that lead back to the domestic condition.

On the other hand, the need for supplies generates collective and free spatiality; open spaces without specific functions.

This double value of the space aims to overcome the hyper-specialization of activity-based working[6] which instead persists in response to any specific request of the client.

Figure 6. Intimate – Shared

The imposition of these different conditions in work activities brings to the fore some experiments that have already investigated new configurations of the workspace.

The architectural project is called to assume this dichotomy as a condition of the workspace and to respond to the needs of sharing, intimacy, freedom and security.

Security – Freedom

Digitization tends towards democratization and horizontal organization of activities in which people can choose their workplace. In addition to the need to recover a primordial bond with nature, p*hygital* therefore responds to another need: the one of freedom.

The binomial freedom and security recalls Bauman's thesis in his book *Liquid life.*[7]

The desire for great freedom of movement in space faces the need of safety in the environment.

In this regard, two interpretations can be distinguished.
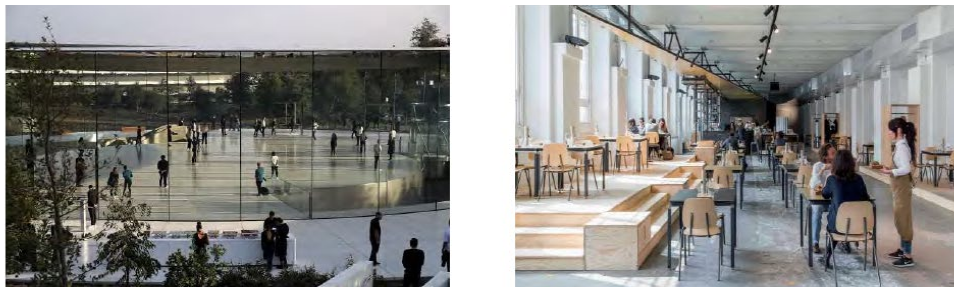
Figure 7. Security – Freedom

The first one aspires to have the greatest possible freedom within a given place, which however involves total control of security; these "bubbles" constitute, in fact, an illusory freedom of the worker. The second one interprets the relationship between control and freedom with an advantage for a greater possibility of choice, which however is paid by less control on security. In this case, the workplaces within the city look like real sponges.

Private – Public

These two terms inevitably prefigure radically opposite workspaces.

Or totally closed, private, inaccessible to the public but efficient in terms of the quality of services and comfort guaranteed to employees.

Or, instead, totally open, public, therefore places for sharing and meeting, which become an accessible point of reference for the neighborhood and the city. Fluid spaces as an extension of the urban public space for a hyper-connected community.[8]

Figure 8. Private – Public

Between these two extremes there are a series of experiences that try to make the two different conditions of space coexist. In fact, many companies, attribute the role of filter space to the ground floor, in which the public and the private interact, proposing themselves as new urban centers.

Decentralization – Proximity

Decentralization or proximity are usually considered antithetical concepts.

The new workspaces seem to make possible the coexistence of these two localization dynamics. the workspace "in its localization" at the same time dislocates itself 4 following two different modalities.

Proximity is traditionally represented by Headquarters or the city center. These workspaces continue to exist, but their function changes, serving more as a showcase for the brand. Alongside these spaces are delocalized sites, which can be indifferently found in urban or rural areas.[9] Hubs made up of flexible and hyper-connected spaces where workers can easily go for their individual activities, for moments of meeting and socializing.
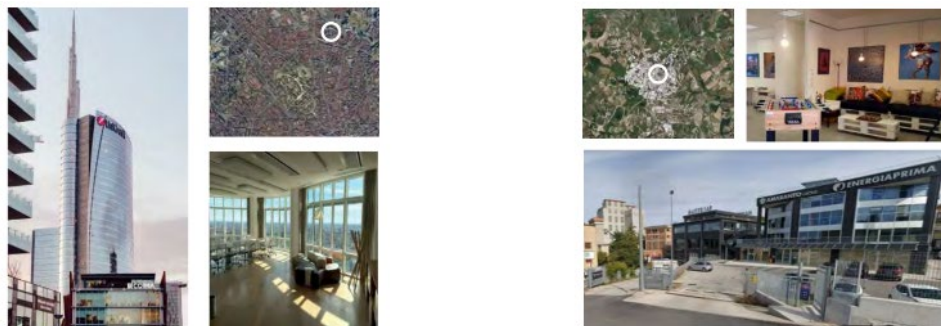
Figure 9. Decentralization – Proximity

In this perspective, the *Poste Italiane* project "Polis - Spaces for Italy" appears interesting. The project involves the creation of free and freely accessible coworking spaces, within the postal offices distributed throughout the national territory.

There are no more traditional location hierarchies. New workspaces can be located anywhere. The new ways of working make equivalent two dimensions that were previously hierarchically defined and opposite.

CONCLUSIONS

Finally, we can state that all the dichotomies investigated, traditionally antithetical, are invited to coexist in the new hybrid workspaces.

By crossing the different characters, we are able to prefigure new conformations and geographies of spaces that are no longer just workspaces, but also spaces for the worker.

Spaces of life that present themselves as new urban centers characterized by the coexistence of physical and digital; by the reconnection between the artificial and the natural dimension; by the creation of intimate and shared spaces; by the desire of freedom and the need of control; by the integration between the public and private dimension and without hierarchy in locational dynamic.

For what has been said, the Hybrid Working Hub emerges not only as a new functional typology of the city, but also as a specific place of the information society; public and social space increasingly recognized and representative of the contemporary city.

In this sense, the Hybrid Working Hubs are proposed as essential devices in the definition of the future organization of the cities. New centralities capable of providing peripheral and rural areas with innovative services and regenerating abandoned urban areas. But also, cornerstones of a broader vision, such as that of the reorganization of the 15-minute city, with a view to greater livability and sustainability of urban systems.

Figure 10. Hybrid Working Hub

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A HOUSING REGRESSION: RELATING THE MUNGER HALL PROPOSAL TO EARLY TWENTIETH CENTURY TENEMENTS

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INTRODUCTION

The housing shortage has long been a problem for poor or working-class communities, and the problem of housing's cost has been exacerbated in recent years. Since March of 2021, rents have grown 17.11 percent in the United States, and between 2022 and 2023, over 80% of markets in the US saw increases in rental costs.[1] Much has been written about the commodification of housing as a way of disenfranchising lower-income populations, but college students as a renting populace have not often been specifically considered in the context of housing insecurity and affordability. Between 2013 and 2020, the rent per bed of purpose-built student housing outpaced tuition increases, growing at a rate of 24%.[2]

At the University of California Santa Barbara, a proposed project called Munger Hall seeks to remedy Santa Barbara's significant housing shortage by providing accommodation for over 4500 students. However, the proposal is unprecedented in its interpretation of modern codes at its massive scale in a way that demonstrates a clear regression in consideration for the quality of dwelling spaces. The proposal should serve as a cautionary tale regarding the direction of student housing design in the United States. The project, when compared with tenement housing designs of the 19th and 20th centuries, and when assessed against landmark tenement legislation, showcases how the intent behind building codes has been rejected in favor of density and profit; furthermore, the proposal highlights social injustices, as marginalized student populations of lower income classes will be those relegated to this contemporary tenement.

BACKGROUND

Historically, housing has been linked to or shaped by the workplace. In the 19th and 20th centuries in New York, lower class families and immigrants flocked to the Lower Eastside due to its relatively affordable housing and its proximity to the garment district, where jobs were available.[3]

Though this relationship has evolved over the centuries, the association between academic enterprise at a university campus and the affiliated need to live in proximity closely resembles this labor and domesticity adjacency. This need makes student residents an especially vulnerable housing consumer, as the requisite of living near a campus is of central importance. Due to price increases in recent years, some students have had to resort to living in vans, trailers, hotels, or other unsanctioned housing options.[4] The strain put on students due to cost concerns has led to an increased demand for on-campus housing, especially at public four-year universities.[5]

TENEMENT HOUSING AND TENEMENT HOUSE LEGISLATION

In the early 19th century, with a great influx of immigration, the city of New York grew from one hundred thousand people to over five hundred thousand in a period of less than thirty-five years.[6] In his novel that recounts firsthand experiences of tenement dwellers, *How the Other Half Lives*, Jacob Riis notes that as the necessities of the lower classes became an opportunity for wealthy property owners, large rooms were partitioned into many smaller ones without regard to light or ventilation. "It was rent the owner was after; nothing was said in the contract about either the safety or the comfort of the tenants."[7] This resulted in some of the densest packed and unhealthiest blocks in the world.

Laws developed to prevent the design of too-small, windowless rooms were created. As health and safety issues became increasingly prevalent in the tenement houses, the Department of Survey and Inspection of Buildings was formed in 1862 to examine both building plans and inhabited buildings to ensure that constructions were safe as residences.[8] The first major legislation passed to handle the state of tenement housing was the Tenement Housing Act of 1867. By this act, in even small interior bedrooms, the Board of Health in New York required the cutting of windows into over 46,000 rooms to facilitate ventilation. The Act also forced the closure of cellar rentals, known as "cave dwellers", due to their lack of access to light and ventilation.[9] A new tenement housing law enacted later in 1879 further tried to reduce crowding to improve health and quality of life of residents by limiting the percentage of lots that could be occupied by new tenements; in decreasing density of the site, access to the outdoors could be better maintained.[10]

A Whole Block of Dumb-bell Tenement Houses built under the Laws in Force in 1900.

Harvard University - Countway Library of Medicine / 2231647.xml
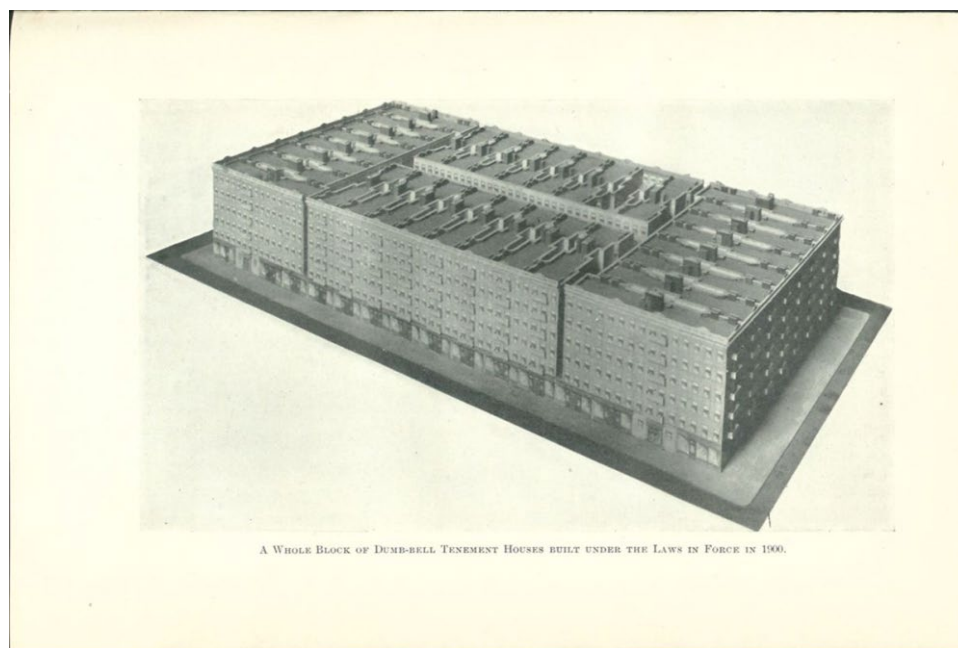
Figure 1. A block of dumbbell tenements, constructed before the passage of the 1901 Tenement Act.[11]

Further action and advocacy by public health groups led to the 1901 New Tenement Act, which expanded upon the previous legislation. This code had sections applicable to already-existing tenement housing and defined requirements for new tenement construction.

A sizable chapter of the 1901 legislation, Chapter III Light and Ventilation, showcases how access to the outdoors through the use of windows, yards, and courtyards was paramount to this code. Thirty-five sections within this chapter clarify dimensioning of outdoor spaces and restrict density by setting forth limits on heights of tenement buildings, noting that no house erected should be more than one

third higher than the width of the widest street upon which it is set. At the back of the house, an unobstructed yard is required, which allows for ample space for fire escapes.[12]

The central of importance of windows to quality of life and health is demonstrated in numerous sections of the 1901 Tenement Act. Section 67 of the code clarifies that in every house erected, every room, except water closet compartments or bathrooms, is required to have at least one window opening directly upon the street or a yard – this closed an earlier code loophole by which tenement landlords had cut interior windows into shafts or spaces that did not access the outdoors to fulfill window requirements. Furthermore, Section 68 of the code specifies that windows be of sufficient size by indicating the window should be "at least one tenth of the superficial area of the room." Windows are also mandated for stair halls by Section 74, and for new construction, windows are also required in bathrooms. Later sections in the code specifically discussing basements and cellar spaces indicate that no tenement room can be placed in a below-grade space unless the ceiling of the space is at least 2 feet above street level and has at least 9 square feet of window area.[13] Additionally, the minimum room size specified was set at 70 square feet in section 70 of the code.
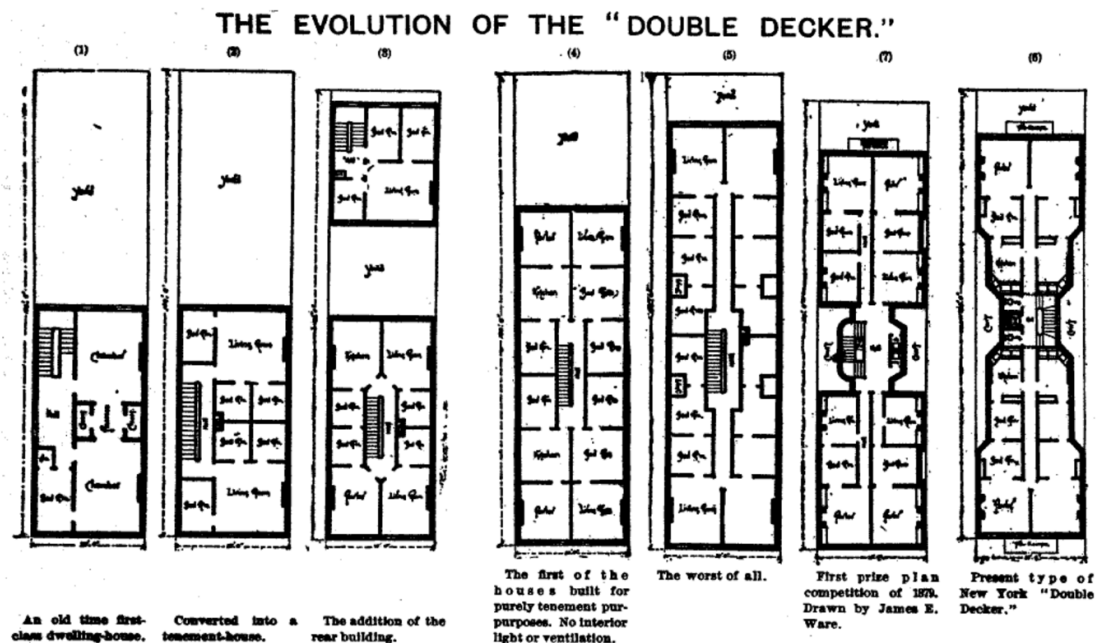
Figure 2. Excerpt from the Report of the Tenement House Committee as authorized by Chapter 479 of the Laws of 1894, with the typical "dumbbell" floorplan of the era on the right[14]

In examining photographs and architectural drawings from before and after the passage of the 1901 Tenement Act, the ramifications of the legislation are profound. One notable change was the newfound obsolescence of the dumbbell plan configuration. This typical floor plan arrangement situated narrow ventilation shafts to either perimeter wall, allowing for a narrow slit for air to make it to bedroom spaces that were not at the street façade; the plan garnered its name from the dumbbell shape created by the narrow slits pinching the center point of the building floorplan. Once ventilation shafts were prohibited and courtyards were required with the new legislation, combined with requirements that virtually all interior rooms have sizable windows, the floor plan configurations became more varied and porous as they sought to maintain efficiency while working toward compliance. The code requirements for windows facing courtyards and minimum room sizes transformed the architecture of the tenements.
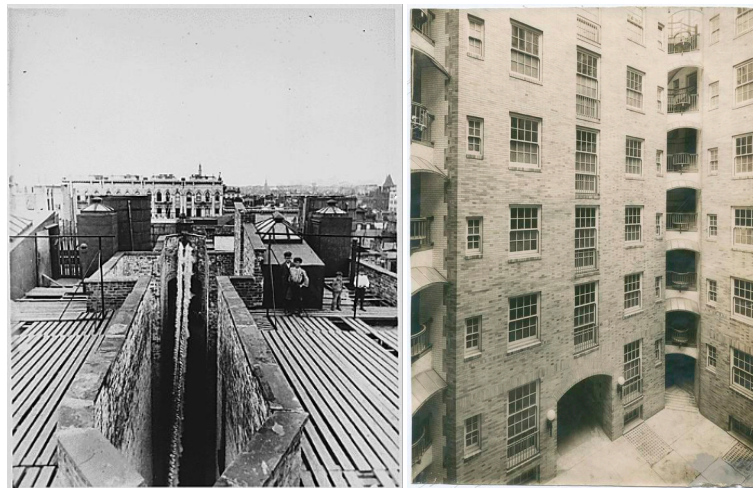
Figure 3. Airshaft of a dumbbell tenement in New York (left)[15] and the courtyard of a new tenement, early 20th century (right)[16]
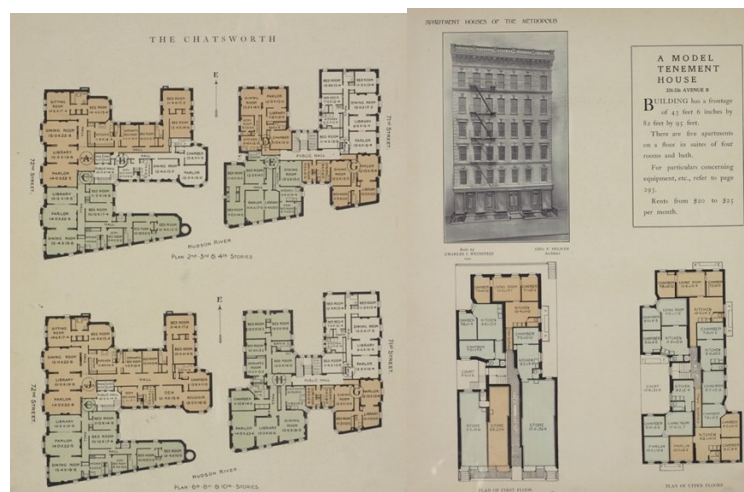
Figure 4. Two tenement schemes designed after the 1901 Tenement Act legislation[17]

UNIVERSITY OF CALIFORNIA SANTA BARBARA AND MUNGER HALL

At the University of California Santa Barbara, Munger Hall seeks to deal with the university's housing shortage in the most unorthodox of manners. The proposed dormitory sits 11 stories tall. There are no courtyards or open spaces within the interior of the building's 1.7 million square feet. Bedrooms, each measuring 7' by 10', are pulled to the interior, with 94% of such sleeping units lacking windows and instead having an LED "faux window" screen in the space.[18] The balmy breezes and natural landscapes of Santa Barbara, which are integral in the living style of other dormitories on campus, are completely excluded from the building.

Figure 5. San Joaquin Student Housing Complex at the University of California Santa Barbara has all open-air circulation, with unit windows facing communal courtyard spaces.

A significant reason the dorm proposal is moving forward is due to its partial funding by billionaire Charles Munger. Munger is donating 200 million dollars toward the estimated 1.5 billion dollar cost of the project. Despite having no formal architectural training, Munger has stipulated that his donation is conditional upon his proposal, designed by Munger in conjunction with VTBS Architects, being followed precisely. Charles Munger has rebuffed the criticisms the project has received, calling detractors "idiots".[19]

Figure 6. A rendering from the exterior of the proposed Munger Hall.[20]

Munger Hall Versus Past and Current Codes

When compared to the progress in building design facilitated by the evolution of building codes, the Munger Dorm demonstrates a clear regression, making even dumbbell tenements and their earlier counterparts seem comparably comfortable. The building scheme is explicitly noncompliant with many of the requirements of the 1901 Tenement Act. The proposal creates a dense building of a monumental scale with no porous moments for open air spaces – the complete lack of courtyards, backyards, balconies, or outdoor spaces is completely counter to not only the ethos but also to the explicit codes given in Chapter III of the 1901 Tenement Act that required courtyards for airflow and

access to light. Additionally, Sections 67 and 68 of the 1901 Tenement Act required window placements on all bedrooms and set minimum window sizes; windows are not provided for the vast majority of bedrooms in the building proposal.

Though Munger Hall would not be permissible per the legislation outlined in the 1901 Tenement Act or numerous other editions of building code, modern technologies such as improved mechanical systems and sprinklers have afforded a regression of building design. Current American building codes, including the International Building Code, typically require bedroom windows to facilitate both fire egress and access to the outdoors, but the California Building Standards Code allows building owners to apply for "Alternate Methods of Compliance". Windows on bedrooms in R-2 residences are not required when an automatic sprinkler system is installed in the building per Exception 5 of Chapter 10, Emergency Escape and Rescue, in the 2021 International Building Code.[21] Through such alternate means of compliance, mechanical ventilation and lighting can also be used in place of windows within building spaces, as is explained in Chapter 12 of code. This accounts for the 94% of bedrooms in the design that do not have exterior access.[22]

While the ethics of these exceptions can be debated even in smaller scale applications, there is no precedent for applying such exceptions for a project at the scale of the Munger Hall proposal. As the former University of California Santa Barbara Design Review Board Member Dennis Fadden, who resigned in protest of this proposal, said, "The real innovation of Munger Hall is that it exploits this provision in the building code – as some would exploit a loophole in tax law – and applies it at an unprecedented size and density. The result is a packing of windowless living units, some up to 200 feet – two-thirds the length of a football field – from a view to the outside world."[23] In its scale alone – housing eight bedrooms per "suite", eight suites per "house", and eight "houses" per floor to cram 512 residents into each floor of the building – it replicates the concentration of tenement housing without the humanizing elements of building design like windows and fresh air access.
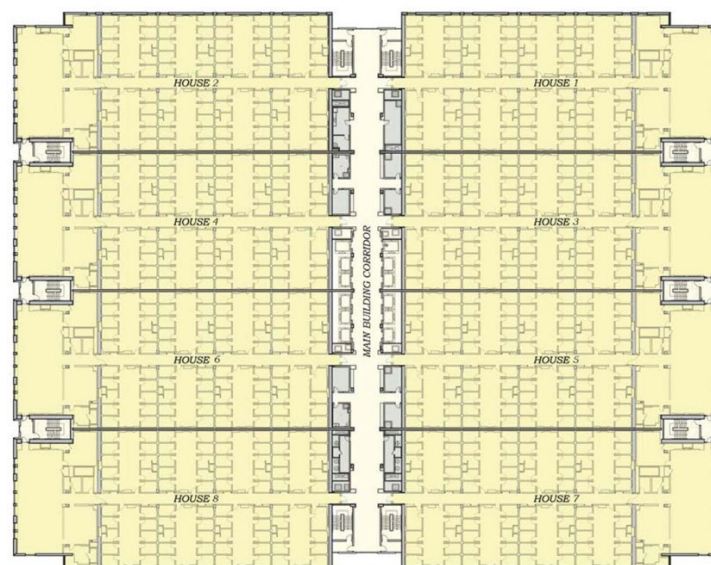
Figure 7. A typical residential level floor plan in Munger Hall, from a 2021 Scope Hearing by the UCSB Office of Strategic Asset Management.[24]

Figure 8. A tenement bedroom (left)[25] and a mockup of a typical bedroom for Munger Hall (right)[26]

Munger Hall Implications

It is unlikely that without some intervention the housing issues facing UC Santa Barbara can be righted. David Madden and Peter Marcuse write that the idea of a self-adjusting housing market is utopian and implausible. "In unequal contexts where the logic of commodification rules, some people will always be forced into uninhabitable dwelling spaces. Some will live in sheds, some in closets. Some will live amid toxic pollution. Some will be packed with twenty-five other people, including children, into a single home. These are not market failures – they are how the market works."[27] This is arguably applicable to the desperation of the current housing situation in Santa Barbara, but rather than the university fixing it through typical measures, like building more conventional housing, the proposed solution creates those uninhabitable dwelling spaces - the sheds and closets - within which students will be expected to dwell.

In Jacob Riis' journalism covering the tenement houses, he noted that the model of employer-owned housing leased to employees, which was common in this era, served to enforce a manner of living that he describes as a type of slavery.[28] In the era of tenement buildings, the exploitation by landlord and simultaneous employer led to many paying unduly high rents out to live in unfit conditions. The same story is unfolding now in Santa Barbara; the need to live in proximity to campus, and rules that require all freshman students to live on campus, give the university the ability to both set rental rates and permit whatever living conditions it deems appropriate, whether or not those ultimately benefit the students. It can be argued that by prioritizing density of student accommodations rather than quality of life of residents, the focus is not to protect students but instead to ensure high enrollments are maintainable and that some of the income stream of housing goes to the university system and not to outside landlords or developers.

Since the 1990's, based on data reported in the annual report from the University of California public university system, students and their families are bearing more of the cost of public education than at any point in history.[29] Additionally, one third of the students in the University of California system have family incomes low enough to qualify them for Pell Grants, meaning their households earn typically less than $45,000 annually.[30] 9400 students attending public universities in California were denied housing because of shortages in 2022; despite the university's housing scarcity and its

significant lower income student populace, the university continues to admit large number of students and increase enrollment numbers.[31]

The increasing cost of attending college combined with significant affordable housing shortages marginalizes the lowest income students. The precarity of the housing situation in Santa Barbara is such that desperation will lead to Munger Hall bedrooms being filled, even if the student populace does not want to live in them. The student population with limited finances will find themselves in the prison-like cells of the dormitory. Meanwhile, more affluent students will still be able to reside in alternate, more conventional and more expensive housing on the cliffs overlooking the Pacific Ocean in this coastal town. While students can rank their dormitory preferences when selecting on-campus living options, many students will be without a choice as Munger Hall will host over 20% of the on-campus beds.[32] In this regard, the housing proposal is a tool of social oppression. It relegates disenfranchised students who must live in the more-affordable on-campus housing to suffer the mental, physical, and social ramifications of extreme density. It consigns students to live as test subjects of a domestic experiment in which they had no say.

Figure 9. Students protesting the Munger Hall project, Fall 2021[33]

In response to these injustices, there has been significant public outcry against the Munger Dorm proposal. A student group in opposition to the dorm's construction presented an alternate housing master plan, asking campus authorities to consider incorporating residences scattered throughout the campus, adding onto existing dormitories and building in place of current parking lots, rather than to construct Munger Hall. UCSB architectural history professors and students joined forces to garner signatures for a petition in opposition to the project. Several chapters of the American Institute of Architects, including the Santa Barbara chapter, published letters or petitions condemning the project as unethical.[34] Numerous student groups have organized various protests starting when the proposal debuted in 2021[35] but struggles have continued into recent months, with efforts including a "die-in" in March of 2023.[36] However, as of May 2023, the project is still slated to move forward as designed.

CONCLUSION

Over time, building codes and related legislation have logically evolved to keep up with contemporary building practices, technology, and needs. However, in the context of the housing crisis, various exceptions within contemporary codes can be exploited to facilitate higher density and subsequently

better profitability for developers rather than preserving the spirit of the law that dates to Tenement House Acts. The Munger Hall proposal at the University of California Santa Barbara is a prime example of this problem, and the implications of its pending construction hold significance regarding the way public housing for students can be impacted by commodification or privatization through donations.

The Munger Hall proposal calls into question how contemporary building codes can or should be utilized in design. While the goal of building codes first and foremost is to ensure health, safety, and welfare in the design profession, this proposal suggests that a broader interpretation of the term 'welfare' that further encompasses quality of life factors may be necessary to ensure ethical practice of architecture in the design of multi-family or student housing in the context of the housing affordability crisis.

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THE ETHICS OF PLAY IN PUBLIC SPACES

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INTRODUCTION

The Early Childhood Education team at Victoria University, Public Realm Lab (architects), and Maribyrnong City Council partnered in 2021 with the aim of reactivating Maddern Square, a public space in Footscray (inner suburban Melbourne, Australia), by introducing a pop-up playspace. This project drew on Playwork expertise, and was overwhelmingly successful in engaging local families. However, the intervention in the space was marked by social and ethical challenges. Maddern Square can be identified as a "haunted place."[1] Our appearance in the square risked the regular inhabitants, marginalised people of all ages, experiencing further repression.

Australian history is fraught with stories of displacement and Victoria University and Public Realm Lab staff foresaw the possibilities of stories of colonisation repeating in this place. Drawing on Haraway's idea of "response-ability", and theories of public pedagogy,[2] this paper explores the social and ethical challenges posed by the implementation of a playspace in public space.

To explore the implications of this work, let us tell you a story of place, play and politics.

PLACE

Footscray is a suburb characterized by its diversity. Waves of immigration from Europe, then Vietnam and other places in Asia, then East Africa are reflected in the community, the shops, the cuisines. It has a reputation for being "rough". Despite it being a suburb undergoing rapid development and gentrification, there are many people visibly affected by drugs and alcohol making use of the streets. Additionally, Footscray has a lack of green space, particularly in the central areas. While there are beautiful expansive Victorian Gardens about a 15-minute walk from the shopping area, Maddern Square is the only green space in the central area of the suburb. Maddern Square is largely hidden, having been created to allow utilities to access the backs of commercial properties. Consequently, there is no engagement or activation of the space, and very little passive surveillance**.**

Public Realm Lab felt strongly that any approach to changing the culture of the space had to be embedded in everyday life. To gently shift how people behave in space requires more than a one-off activity, and more than changing the physical elements of the space. Rather, it is necessary to slowly introduce a new bio-rhythm into that space, which everyone can adjust to and become acclimatized to.

Figure 1. Maddern Square, Footscray, Melbourne.

PLAY

Between March and June, 2021, the Early Childhood Education team at Victoria University, along with Public Realm Inc and Maribyrnong City Council (local government) established a "pop up playspace" in Maddern Square, called Mini Maddern. The playspace was active four days a week over twelve weeks. The materials were stored in shipping containers on site and were unpacked each morning and packed up again each afternoon.

The practice of the Early Childhood academics and pre-service Early Childhood teachers working in this urban public space, was guided by the ethical and professional principles of Playwork.[3] Playworker and play theorist, Gordon Sturrock, says, "Trying to define play is like trying to define love. You can't do it. It's too big for that."[4] Instead, playworkers and theorists describe play as "a set of behaviors that are freely chosen, personally directed, and intrinsically motivated."[5] Fraser Brown, Professor Emeritus of Playwork, describes this work as "the specific act of affecting the whole environment with the deliberate intention of improving opportunities for play."[6] Working under the Playwork principles, Playworkers maintain play spaces for children, whilst ensuring the environment is ready for play.

A variety of collected loose parts – tyres, boxes, pipes, tubes, fabric, rope, chalk, trolleys, corks and so much more – were made available for children to explore, experiment, construct, and deconstruct. Stuart Lester describes what Playworkers "do" as providing:

a play environment in which children will laugh and cry; where they can explore and experiment; where they can create and destroy; where they can achieve; where they can feel excited and elated; where they may sometimes be bored and frustrated, and may sometimes hurt themselves; where they can get help, support, and encouragement from others when they require it; where they can grow to be independent and self-reliant; where they can learn—in the widest possible sense—about themselves, about others, and about the world.[7]

Children are empowered, through a low intervention style, to direct their own play, for their own reasons,

in a process that is freely chosen, personally directed and intrinsically motivated."[8] Consequently, in a playwork space, children and young people determine and control the content and intent of their play, by

following their own instincts, ideas and interests, in their own way, and for their own reasons.

Figure 2. The pop up play space (Mini Maddern) at Maddern Square, Footscray

POLITICS

The project was funded by the City of Maribrynong, in which Footscray is located. Their aim was to bring families into the square to "activate" a space they saw as underutilised. The City of Maribyrnong had grappled with how to address the problem of anti-social behavior in the square with projects such as classic landscape architecture, and outdoor events.

Mini Maddern was the brainchild of Public Realm Lab, an architectural firm located in Footscray. Their aim was to a create model of a family and child-friendly city environment. The way that spaces are used is deeply based on the population's understanding of their right to the space, and to the culture of the place. Socially, communities establish minimum expectations about what is appropriate in a space. Public Realm Lab were inspired by the work of Kathy Hirsh-Pasek's ideas about catering to local children and families in the city, as a way of shifting the narratives about, and the occupation of, space. In Maddern Square, one challenge was to have the lowest intervention possible in many ways. In practice, the introduction of children's play into the space was about designing systems and social relationships with the bare minimum of what urban designers and architects typically deliver. In this way, the activity in the space might gently foster relationships and suggest new ways of being in place.

Victoria University was brought into the plan to activate the site through a Playwork lens. The aim of the Early Childhood academics was to provide a Playwork playspace and a site for students to complete their placement. Over 150 of VU's Early Childhood teaching students completed a placement at Mini Maddern.

A key idea of playwork is "Playable spaces."[9] Penny Wilson observes that the term playable spaces, "sums up quite delightfully the need for architects, parks managers and staff, developers, and town planners to look at the places where children play and ask, "Why there?""[10] Wilson states that playable space "implies that communities should consider children in the overall design of the fabric of environments and, by extension, think about human beings rather than just traffic and other economic factors. A playable space is pleasant for every bit of a community to be in."[11]

PLAY AND POLITICS

Maddern Square can be described as a "haunted place."[12] This term captures the idea that places and urban artefacts are expressive repositories, holding a collective memory. Maddern Square's "haunting" might be in line with what Gordon describes as a screaming presence of that which appears to not be present, "ghostly matters" that are signifiers of what is missing and what actually must be examined.[13] Alcohol, drug use and mental health issues were, and still are, a big part of daily life at Maddern Square. Tucked away out of sight of most of the Footscray foot traffic, we can assume that many people used this square as a way to escape the passive surveillance of passers-by. Repressed forms of violence lingered, and could not be ignored. The appearance of the pop-up playspace in the square risked the regular inhabitants and marginalised people of all ages, experiencing further repression. By bringing in children, families, the local council, architects and many other interested observers or participants, our actions in creating a playspace risked the displacement of these people.

The Early Childhood academics and Public Realm Lab became keenly aware that public space is never neutral land. Different communities of people 'adopt' certain spaces, which then become associated with them. In the case of Maddern Square, there was a regular community of people who inhabited the space, people who might be described as dispossessed, marginalised, and without anywhere else to go. Victoria University's presence there, along with Public Realm Lab, was guided by our firm belief that children and families had a right to use this public space. We wanted to demonstrate through the pop-up playspace that this was a place where children belonged, and had ownership, agency, and influence. However, we did not at first recognise that this place, although a public space, already "belonged" to other people.

We referred back to Avery Gordon's idea of the "haunted place" to help understand the history and the present of this piece of urban land; the sense that repressed forms of violence lingered in the space, and brought a sense of urgency into the present moment.

In this context, it's worth remembering that all land in Australia is stolen land. The Aboriginal people did not cede their lands, and no treaty was ever signed. Australia was colonised on the basis of "terra nullius" – meaning empty land, land belonging to no-one. Our students were also keenly aware of this. Alongside this placement, they were studying a unit called "Engaging with Place" that critically examines the colonisation of Australia, the dispossession of Aboriginal people, and the dismissal of the Aboriginal ways of knowing - and the effects of this history on society and education today.

This haunted square exists in a haunted country. When we invited children into this place, we were confronted by the questions – were we displacing the people who regularly inhabited the square? Was this another form of colonising practice?

POLITICS IN PLACE

We were confronted with possibilities of stories of colonisation repeating in this place.

Our aims, as early childhood academics and architects, included children having agency in public space and having ownership of that space through play. However, because it was a "haunted place," this space required much more of us.

We were intrigued by Donna Haraway's idea of "response-ability."[14]

When we break the word up into its two parts, as Haraway does, and talk about "response-ability," we are recognizing that we are in relationship with the place, the other people, and the more-than-human (including ideas, objects and creatures) that are in that space with us. This idea of "response-ability" suggests that rather than imposing ready-made, defined-in-advance frameworks (such as rights, social justice, or vegan ethics), it is necessary to respond in situated ways to our existing, irreducibly entangled, relations.

Haraway's notion of "response-ability" became a guiding concept for our work, expanding on her application of it to relations with animals (which we could apply to the pigeons we shared the space with), to all those that we were in relationship with, those who our presence affected, and whose presence we were affected by. Taylor takes Haraway's idea and applies it historically, writing about the ways that Higher Education students' engagement with each other and the world is shifted by a visit to a Holocaust Museum. This application of "response-ability" to both past and present entanglements, and the entanglement of the past **in** the present, provided us with a helpful framework.

PLAY, PLACE, AND POLITICS IN PRACTICE

Jane Jacobs said "Cities have the capability of providing something for everybody, only because, and only when, they are created by everybody."[15] This idea of community involved in the creation of shared spaces led us to ask: How can spaces include everybody? Does inclusion of some groups necessitate the exclusion of others? Whose space is it, and how are competing rights acknowledged and respected? Engaging with the issue of ownership of space invites further questions about the boundaries of communities – where do our relationships begin and end? Who is "in" and who is "out" of our community? Questions of imbalances of power also arise: do children and adults have equal power in public space? Do some adults have more power than others? Underlying these questions was the academics' and architects' desire to make space for the ethical interaction of different groups of people who shared a right to the same piece of land.

Playwork provided the theoretical framework for the academics to begin to address these questions. It is an approach that values the mess and chaos of the urban environment, and the creativity that can be found in this. In principle, and as a process, Playwork connects to place and people, and all the messy entanglements that ensue.

Carlina Rinaldi states, "children are the human beings who know how to question themselves and others, to be surprised and ask why, to change patterns and expectations and at the same time, innovate."[16] This was the children's city, they lived here, and they needed to see all people as part of the community. As long as children were safe and protected, and able to learn about their community with adults who cared for them, should they have also been able to encounter people that adults often try to keep hidden from them?

Our aim, as academics and architects, was to share the space at Maddern Square, not to privilege one group over another. The Early Childhood team, in setting up and welcoming children and families, sought to maintain space for others who had the right to co-exist in this place which we had entered as newcomers. We observed that the children, the regular inhabitants of the Square, and the children's families over time, became responsive to each other. The presence of the children was a powerful factor in helping different groups understand each other more. Sometimes people in the square moved to other areas of the space to make room for children. They would say things like, "I'm going to go and drink. I'm going to go somewhere else because the children are here." This wasn't said as a statement of displacement, but as a recognition of what society thinks is appropriate for children to witness. Later that day, or the next day, they would move back in from the edges and re-join the main part of the square.

Sometimes children were curious about the people around them. An elderly Vietnamese man who came to feed the pigeons each day, making eye contact with no one, eventually began to quietly hold out some food to share with the children so they could feed the pigeons alongside him. Sometimes the children were thoughtful; sometimes they needed to make space for others. Mostly, however, the children were immersed in their play.

And, mostly, the people who inhabited the square said they were happy to see the children. The play and vibrancy was appreciated by people who perhaps had little opportunity to see or interact with

young children and their play in their regular lives. The shift in behaviour that Public Realm Lab had sought, became slowly observable amongst everyone who used the space. The Early Childhood students and academics in the space challenged themselves, and the children's families, to think about children's capability, children's rights, children as citizens, a part of a community, even if that community is not perfect. Colin Ward, in *The Child in the City,* stresses the incredible "competence" of children in navigating urban environments, the people, places and the dangers associated with these places.[17] The Maddern Square site was distinguished by the fluidity that opened up opportunities for psychosocial negotiations of space, rather than a very typical architectural urban design approach where everything's fixed, and negotiation outcomes are predetermined.

This leads to the question: what a child friendly city? Of course, children must be safe, and their right to play and learn must be acknowledged and catered for. Children also have a right to be in community. Human communities are not perfect because they are made up of imperfect humans. Given space and opportunity, children, as active citizens, build communities when they engage with the people around them. Moreover, the bounds of these communities can stretch and reshape to include people unlike themselves. Children understand entanglement. They live the connection of people, places, feelings, animals and objects. This is how they discover and make meaning of their world.[18] The space of wonder that the academics and architects sought to create at Mini Maddern became something far more powerful: a way of thinking about, and seeing in action, how children can influence, and even create, their local community.

CONCLUDING THOUGHTS: APPLYING OUR LEARNING

Over the last two years, Early Childhood at VU has continued to take Playwork throughout the suburbs of Melbourne with pop-up playspaces, using loose parts. In these urban environments we support children's play in, and with, community. We currently run pop-up play spaces in 16 local government areas across Melbourne as well as a site in Sydney, NSW. In 2022 we facilitated 25 sites and 640 play sessions, 1286 students and thousands of families engaged with pop-up play, connecting with community, and supporting the agency and rights of children as citizens.

We have learnt that public space must be navigated with care, respecting the rights of all citizens to use it. We have also learnt when we apply Playwork principles, children's play is a powerful and healing activity that can expand the boundaries of communities, creating a more inclusive experience for everyone.

NOTES

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[5] Wilson, 5.

[66] Fraser Brown, *Playwork: Theory And Practice: Theory and Practice* (UK: McGraw-Hill Education, 2002) 54, citing *Playboard*, 1984.

[7] Cited in Wilson, 4.

[8] Play Wales

[9] cited in Wilson, 25, 26.

[10] Wilson, 25.

[11] Wilson, 25.

[12] Gordon, 2008, 2011.

[13] Paraphrased from
https://www.sociologylens.net/topics/culture/avery-gordons-ghostly-matters-and-the-haunting-of-sociological-research/13127_

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[15] Jane Jacobs, *The Death and Life of Great American Cities* (NY: Vintage Books, 1992), 238.

[16] Carlina Rinaldi, "The child as citizen: holder of rights and competent. The Reggio Emilia educational experience", Miscellanea Historico-Iuridica, 19(1) (2020), 13.

[17] Colin Ward and Ann Golzen, *The child in the city* (London: Architectural Press, 1978), 73

[18] Mary-Rose McLaren, Jessica Grimes, Sarah Jobson and Caroline Scott, "The response-ability of a public pop-up playspace: Deep listening at Mini Maddern in inner-city Melbourne", The Challenge, (May, 2023).

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RESCUING A LIVABLE STREET BY "ROLLING OUT THE RED-CARPET":
REIMAGINING STEPHEN AVENUE, CALGARY

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INTRODUCTION

Cities need to reinvent themselves by reimagining their public places into vibrant nodes to attract private development that supports social equity, environmental sustainability, and livability. Streets are vital public spaces of the city that support daily interactions and provide an arena for activities covering a blend of functions and traffic forms. Physical characteristics and functions of streets reflect the character and sense of place within cities. A street's location, physical appearance, landscape features, and quality of views affect a commercial street's sense of place,[1] and by extension the street's livability.[2] A livable street is a safe street that exhibits a strong sense of place and identity.[3] A livable city requires livable streets, particularly commercial streets located in the downtown historic district that define the city's identity. Calgary is developing a streetscape master plan for the reimagination of Stephen Avenue as a step towards redefining the identity of its downtown area. The distinctive character and heritage value of Stephen Avenue resides in sandstone and brick buildings of its late-nineteenth-century retail streetscape. The challenges posed by a slowing economy of the oil industry and the city's energy sector since 2014 coupled with physical deterioration, social disorder, and very high street front vacancy rates in the earlier part of 2019 prompted the need to rescue Stephen Avenue and leverage it for downtown revitalization. From pedestrianizing the avenue in the early 1970s to the reintroduction of cars in the mid-90s, Stephen Avenue is currently being reinvented as a livable street by rolling out "the red carpet", widening and extending it westwards to consolidate it as downtown connector for a complete public space network and change the perception of the street to a premier center for arts, culture and commerce. The paper revisits the reasons behind the decline of the livable street while examining the logic behind extending and branding the street to "the Avenue". The authors argue that although such a strategy may position the street to success it effaces symbolic attachments of the city to its historical roots that relate back to processes of prairie urban development including orientation towards the railway, a gridiron plan, and spatial specialization. Rescuing a livable street by putting it into the spotlight and rolling out the red-carpet risks reaping unfavorable effects of branding and aesthetization.

Figure 1. View of Stephen Avenue looking East towards City Hall (photo by author, June 2023); notice bike mark on street shared with pedestrians.

PERFORMATIVITY OF A LIVABLE STREET

Livable streets are linked to positive social, economic, and environmental outcomes because they are pedestrian-friendly streets which are inclusive and fulfill the needs of potential users. Livable streets enhance accessibility, safety, innovation, and quality of life of an urban environment.[4] Updating the image of streets is the easiest way to improve the quality of life and livability of a city. However, the task of image-making for a street presents challenges when the sought-after image is the result of nomocratic planning by urban planners whose key design move is branding the street with an image that is normative or universal. The challenge becomes especially critical when the street in question is part of a national historic district that is rich with architectural detail and materiality of its buildings. A nomological standardized approach erodes historical spatial differences and reduces the uniqueness of urban identities.[5] Performativity of the street may suffer from the restricted brand image, fabrication of a public culture, and eventual brand decay as the street acquires a more pluralist range of representations.[6]

Kotus and Rzeszewski understand livable places as an intangible outcome of planning initiatives and strategies that aim towards sustainable development and the creative city such as livability and well-being as well as place and place-making. From a performativity perspective, a livable place possesses agency, and projects an image of the city. Branding a street is detrimental to the development of the city's image because branding separates the street from being an integral part of the city, figuratively speaking making the street 'immiscible'. Branding is also detrimental to a street's performativity, measured as the effect the street has on user experience of space as well as adaptation of the street to

complex dynamics of urban change in the city. Imposing a rigid image (top-down planning) or, conversely, freewheeling a loose image (bottom-up planning) does not result in a livable place.

To avoid falling into either of those two extremes, a balanced approach needs to be adopted. In their study of a street in Poznan, Kotus and Rzeszewski caution against overinvesting in livable places lest they become socially homogeneous to an extent that they ultimately turn into "elitist islands barred to all others", a process known as gentrification, with disordered spaces developing around those "livable bubbles"[7], or otherwise surrounded with void spaces, border vacuums which prevent overlays of difference.[8] Overinvesting is thus socially and spatially unsustainable. To avoid overinvesting, the starting potential of the street should be considered. The starting potential comprises social and spatial potentials of the street that provide a diagnosis towards better planning directions. Starting social potential refers to people and social groups inhabiting and using the area. Meanwhile, starting spatial potential refers to the spatial attributes of the urban environment. The emergence of a livable street arises when a balance is maintained between outlooks for actualizing each of the two potentials. Raising the outlook for one over the other potential results in an imbalanced approach and thus, instead of leading to a livable street, leads to a branded street that exhibits aesthetization and gentrification.

STEPHEN AVENUE 3.0

The year 2019 marks the start of the third intervention of City of Calgary for a reimagined Stephen Avenue. Stephen Avenue pedestrian mall is the portion of 8th Avenue SW between 4th Street SW and 1st Street SE. Extending Stephen Avenue, by rolling out the red-carpet to include the remainder portion of 8th Avenue after its crosses 4th St SW, does not consider the discordant streetscapes and disparate urban fabric of the two sections of the avenue, nor does it consider that the portion of the avenue to the west of 4th St SW is not one homogeneous stretch but, from field observation on June 13, 2023, the portion actually consists of two zones. One zone stretches from 4th St SW to 8th St SW and is characterized by commercial uses on the ground floor of mid-rise buildings, notable presence of banks, a hotel and a few instances of high-rise buildings connected by raised pedestrian walkways (the +15 ft. skywalk system), a recreation park (Century Gardens), a multi-story parkade structure and uniformly spaced trees on both sides of this zone with metal grates at their base and shielded bike lanes. The other zone stretches from 8th St SW to 11th St SW and is characterized by low-rise residential, vacant parking lots, lack of trees except an odd one or two, and an unshielded bike lane. Moreover, this zone has noticeably less pedestrian traffic than the preceding zone; taken together, both zones have considerably less pedestrian traffic than the historic Stephen Avenue (Figure 1). So, the decision to extend Stephen Avenue beyond 4th St SW is not justified. Feedback from citizens voiced concern over extending noise levels of a non-stop carnival to a residential area. The City of Calgary based its decision on common sense by continuing their intervention over the entire avenue without a clear diagnosis of the starting potential of each of the zones of the avenue. The City is now in the second phase of the project for developing a Streetscape Master Plan for Stephen Avenue to improve its mobility, connectivity, accessibility, safety and beautification.

The case of Stephen Avenue in Calgary is not altogether different from Szamarzewskiego Street studied by Kotus and Rzeszewski in Poznan. Kotus and Rzeszewski found that Szamarzewskiego Street's starting potential divides the street into three zones: a stigmatized old zone constructed in the late 19th c. and under architectural protection due to interesting façade details, a transitional zone undergoing gentrification, and a third stagnated zone with isolated buildings. They criticize city officials and Poznan's Revitalization Program for limiting their approach to normative measures such as improving the aesthetics through renovation of buildings and streets and maintaining greenery for boosting the spatial potential without a parallel consideration of the social potential of the street. Fast-

track ten years later, Calgary is witnessing a similar approach by city officials for reimagination of Stephen Avenue. Their focus is bent on raising the spatial potential without a parallel focus on its social potential for rescuing the livable street. Despite the measures taken to improve the street for multi-modal use (for pedestrians, cyclists, and motorists) for the extended addition to Stephen Avenue, and shared use for the original stretch of Stephen Avenue, as well as activating the interface of the street with the ground floor of buildings by accommodating daytime and night-time activities, city officials are committing a few blunders that could have been avoided. The impetus of the City to establish a new vision for Stephen Avenue is driven by the imperative to fast-track economic recovery of downtown and attract new businesses after a slowing economy of the oil industry and the city's energy sector since 2014.

DEROOTING THE STREET

Derooting of Stephen Avenue had begun with earlier interventions when historic buildings were adapted for reuse with incompatible functions to their original use such as the adaptation of a bank (Bank of Montreal) with a neoclassic façade to a GoodLife fitness center with modern street furniture installed in front of the building. Other examples are the Bank of Nova Scotia converted to a pub called Bank & Baron, and The Molson's Bank converted to an Irish pub. Immanently, the first blunder by city officials is renaming Stephen Avenue to "The Avenue", thereby disconnecting the avenue from its historical reference to George Stephen, first president of Canadian Pacific Railway, the company responsible for construction of the railway that stimulated processes of prairie urban development for Calgary such as orientation towards the railway rather than the river, spatial specialization, and a rectilinear grid pattern of streets. Renaming is a key branding strategy to announce a new beginning or new identity for the street. However, when the new name severs all ties of the street with its historical development and tags the street with a universal name like The Avenue, it attaches the street to a global abstract reference, a non-place, rather than immersing it within local place. The same situation of renaming occurred for the renovation of Eaton Shopping center (named after Timothy Eaton) at the intersection of Stephen Avenue with 4th St SW, which was renamed The Core. The renovated interior became a non-place not different from the aesthetic of shopping galleries in airport terminals. It will be strange to see existing vertical banners hung on streetlight posts that read "Stephen Avenue Walk" changed to "The Avenue Walk," recalling Universal Studios City Walk in Los Angeles or, better, The Grove pedestrian mall in Beverly Hills, which lack historical roots with their false streetscapes that mimic classic historic districts. Calgary may leverage the authenticity of its sandstone historic buildings (Figure 2) by holding onto its history rather than shying away.

The second blunder is aesthetization of The Avenue using similar global strategies for street renovation that leads to gentrification by attracting the elite and upper-class residents, pushing away current inhabitants by dispossession, and preventing appropriation of the street by low-income users. Aesthetization and branding are two strategies deployed to increase a sociability dependent on visual coherence of the streetscape rather than an authentic sociability based on social interdependence.[9] Aesthetics, as a cultural factor, catalyzes a process of exclusion from urban spaces.[10] The third blunder is structural change of the street and extending it beyond its potential. This point was mentioned above regarding the zones of the street which should take into consideration the existing or starting potential. In addition, feedback from citizens voiced their disapproval for the shared use of the original Stephen Avenue section that is proposed to alternate between having program zones for pedestrians on the outside of the street for two blocks (4th St SW to 2nd St SW), then pushing them to the middle for three blocks (2nd St SW to 1st St SE), then to the outside again till City Hall for such a short section of a few blocks.

Figure 2. Historic Sandstone Buildings along Stephen Avenue (color photo by author, June 2023)

The dual character of Stephen Avenue shifted from pedestrian-vehicle dualism to pedestrian-cyclist in the third version of the avenue. In the first two versions of intervention, prohibiting car traffic in 1970, pedestrianizing the street, and then reintroduction of car traffic after 6 pm in 1994 was a result of opposition to pedestrianization of streets by retailers for service and delivery accessibility, cost recovery from business reduction, and safety issues. Other barriers to pedestrianization include planning for the shifted traffic circulation and infrastructure.[11] Stephen Avenue may be a type of street that manifests "hidden structures of unsustainability"[12] due to its unique situation within downtown Calgary. The introduction of bicycle lanes in downtown necessitates a connected network of which Stephen Avenue happens to be a pivotal link due to the boundedness of the street from the north by the light rail transit (LRT) along 7th Ave and from the south by the railway tracks along 9th Ave. Field observation of Stephen Avenue confirmed the hazardous situation of having shared pedestrian and cycling traffic (Figure 1). Contrary to 8th Ave which has dedicated bike lanes, Stephen Avenue labelled the street for use by cyclists while sidewalks are interrupted for pedestrian movement due to fenced restaurant terraces that overtake the sidewalk, forcing pedestrians and cyclists to navigate the shared territory of the street (Figure 3).
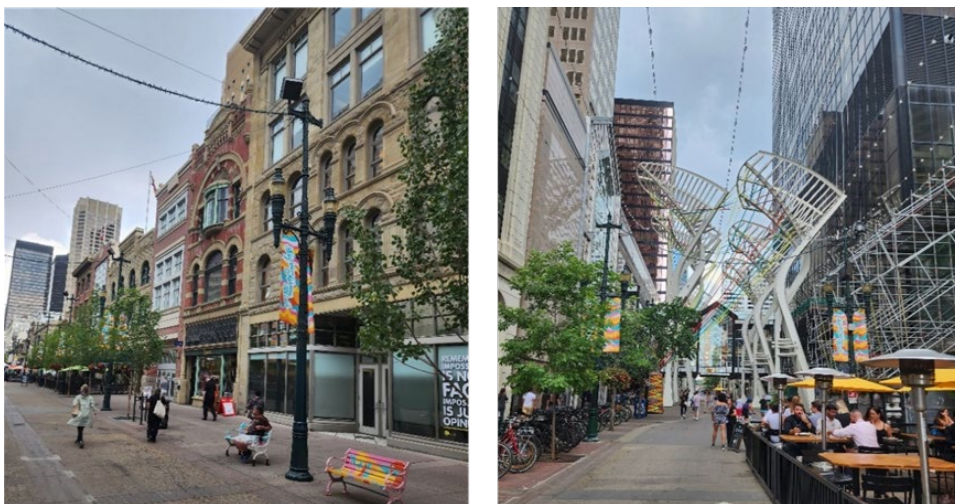

Figure 3. Beyond sculptural trees characteristic of Stephen Avenue, restaurant terraces, micro-mobility station, sporadic trees, and street furniture encumber the performativity of the avenue. (Photos by author, June 2023).

SAINT MARTIN STREET, POZNAŃ

It may be instructive to refer to another historic street whose revitalization is similarly used as a strategy to revive the downtown area of a city. Saint Martin Street (Święty Marcin) is one of the most important streets in the center of Poznań with a rich history, dating back to the 12th century, as a trade route and multi-modal street. The street has also passed by periods of decline and remodeling much like Stephen Avenue, albeit in a different cultural context. Like Stephen Avenue, the streetscape of Saint Martin retains a combination of neoclassical and modern styles. Commercial vacancies increased along the street in 2010, and it was not until 2014 when an urban revitalization program began for changing the function and urban layout of the street for the first time. Nevertheless, the street still had a car-oriented character with some greenery added only cosmetically. A second revitalization strategy balanced the need to introduce a larger amount of greenery while maintaining the street's spatial character. The revitalization included an almost uniform floor pattern for the broadest section of Saint Martin St. which gave the street a character much like that of a square (Figure 4). Pedestrians dominated the street amidst calm traffic that favored public transport and bicycling over car traffic. The changes were also intended to stimulate local trade and services.

Figure 4. Saint Martin Street in 2015 (Photo: Janusz Ludwiczak / Onet)

The recent renovation in 2021 proposes one of the street sections to be planned as a residential zone, i.e., a public space combining the functions of a street, a promenade, a car park and a meeting place for residents. The remaining section of the street will have a speed limit of 30 km/h (Figure 5). Notably, the revitalization preserves the annual celebration of "Street Name Day" on November 11 that symbolizes Poznan's Independence and commemoration of St. Martin.

It is difficult to say that the postulates of livable streets have been achieved for Saint Martin St. The street, instead of becoming a place appropriated by its residents, has become a kind of urban theater, which invites passers-by (the vast majority of whom do not live in its vicinity) to stop and spend some time there. The reconstruction did not necessarily involve the introduction of a better quality of life to the existing social fabric. The street has become more friendly to outsiders, tourists, students, and representatives of the working middle class, not necessarily its longtime inhabitants. Despite consultations with residents, it is difficult to say that they were somehow more widely involved in the entire process.

Figure 5. Saint Martin Street in 2023 (Photo source: City of Poznań).

CONCLUSION

Rather than finger-pointing mistakes, the wider concern is uncovering reasons behind succumbence of city planners to nomocratic planning for global branding and to what seems to be common sense decisions. For Stephen Avenue, rebranding it to "The Avenue" and extending intervention to the residential area west of 4th St SW with the logic that "we might as well," or "why not," demonstrate the fallacy of nomocratic planning. Although Saint Martin St. retains connections with its history, it also falls prey to strategies of nomocratic planning for a global audience rather than sensibilizing intervention to its local context. If anything, such a planning approach follows a logic of quantity over quality, outer image, or external norm, over an authentic inner image. Urban planners need to tailor interventions by adopting a localized approach, a "planning from within" rather than "from outside" which conflates planning with imposition and control. It is an approach that acknowledges the city as a complex system which needs a commensurate planning approach to deal with that complexity[13] so that the city can continually adapt to societal changes and create livable streets that respect and splice fraying ties to their history rather than forsake their morphological roots.

NOTES

[1] Musaab, Shuhana, and Nahith, "A Review Paper on the Role of Commercial Streets' Characteristics."
[2] Hu and Chen, "A Framework for Understanding Sense of Place in an Urban Design Context."
[3] Istrate et al., "Developing an Analytical Framework for Liveable Streets in Shanghai."
[4] Dumbaugh and Gattis, "Safe Streets, Livable Streets."
[5] Zukin, "Urban Lifestyles: Diversity and Standardisation in Spaces of Consumption."
[6] Evans, "Hard-Branding the Cultural City – from Prado to Prada."
[7] Kotus and Rzeszewski, "Between Disorder and Livability. Case of One Street in Post-Socialist City," 133.
[8] Bickford, "Constructing Inequality."
[9] Zukin, "Urban Lifestyles: Diversity and Standardisation in Spaces of Consumption."
[10] Zukin, "Consuming Authenticity: From Outposts of Difference to Means of Exclusion."
[11] Yassin, "Livable City: An Approach to Pedestrianization through Tactical Urbanism."
[12] Emanuel, "Livable Streets and Hidden Unsustainability:"
[13] Lai, *Planning within Complex Urban Systems*.

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THE IMPACT OF PARTIAL SLEEP DEPRIVATION ON THE RELATIONSHIP BETWEEN LOCAL BODY SKIN TEMPERATURE AND THERMAL SENSATION IN THE INDOOR THERMAL ENVIRONMENT

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INTRODUCTION

The thermal environment is one of the key factors that affect human health, psychological & physiological responses, and productivity.[1] Thermal comfort is "the condition of mind that expresses satisfaction with the thermal environment and is assessed by subjective evaluation".[2] Scholars and scientists were focusing on creating thermal comfort predictive models to provide a desired thermal environment, Such as PMV (Predicted Mean Vote)[3] and adaptive comfort models.[4] Although these models were widely adopted,[5] many studies have reported that these existing models have significant limitations and deficiencies due to the reliance on the aggregated thermal perceptions of occupants as a group and the negligence of the individual differences.[6] Thus, many studies have suggested alternative approaches such as local climate control to respond to the individual differences.[7] There are known factors that have a significant impact on thermal comfort, such as thermal sensation,[8] gender, body mass index (BMI), and metabolic rate.[9] Some studies have also revealed that gender difference and BMI affect humans' thermoregulation significantly.[10]

Similarly, sleep deprivation was also reported to have an impact on human thermoregulation. Recent studies have shown that there is a relationship between sleep deprivation, thermal environment, body core temperature, thermal sensation, and body thermoregulation.[11] It was also verified that partial sleep deprivation has an impact on body thermoregulation, thermal comfort, and thermal sensation.[12] However, the existing studies used subjective evaluations to identify the relationship between sleep deprivation and thermal comfort, and the temperature conditions were also limited to extreme outdoor conditions, which creates a research gap. Thus, this study aims to investigate the impact of partial sleep deprivation on thermal sensation by using local body skin temperature as an objective measurement in various indoor temperature conditions, based on the ASHRAE standard.

METHODS
Experiment chamber

A series of human experiments were conducted in a designated experimental chamber (3m x 5m x 3m) at Lawrence Technological University to collect the participants' physiological signals as well as their thermal sensation levels (Fig 1).
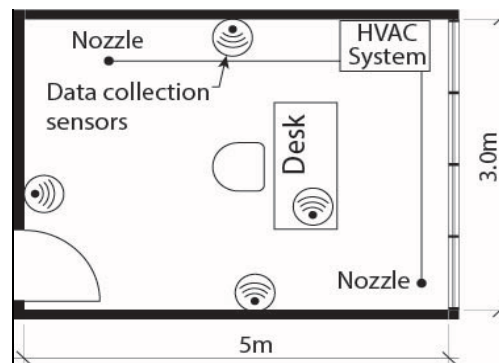
Figure 1. Experiment chamber and equipment plan

A dedicated HVAC system was used to control the indoor air temperature for the experiment conditions. The air velocity was controlled at less than 0.2 m/s, based on the ASHRAE-55 recommendation. [13] Six temperatures were used to represent the normal range of the indoor temperature (18 °C, 20 °C, 22 °C, 24 °C, 26 °C, 28 °C). A general office chair and desk were provided in the center of the chamber, where the data collection devices were installed. Indoor temperatures were monitored at four different heights (0.1 m, 0.6 m, 1.1 m, and 1.7 m) and its overall vertical gradients were measured at less than 1.4°C. The indoor temperature at the height of 1.1 m was the primary temperature used in this study. The relative humidity (RH) and CO_2 density were measured consistently to maintain the experimental conditions based on the ASHRAE Standards 62.1,[14] which was controlled at 35% (±5%). Two outlets were installed on each side of the room to control the air velocity around the chair and the desk areas, which was maintained at 0.1 m/s ±.05 m/s at heights of 0.6 m, 1.2 m, and 1.6 m from the floor level.

Experiment equipment

Various data were collected, including physiological signals (Heart rate and skin temperature), ambient temperature, relative humidity, CO_2 density, and air velocity in this study. The collected data was transmitted via a DAQ (Data Acquisition) system and recorded on the laptop. Table.1 shows the specifications for each data acquisition device and its application.

Device	Model	Specification
Air Temperature Sensor	LM35DT	Accuracy: ±0.5°C (at 25°C), Resolution: 0.01°C, Sensing range: −55°C–150°C
Air Velocity Sensor	Testo 450-V2	Accuracy: ±(0.1m/s + 5%), Resolution: 0.01 m/s
Co2 Sensor	Telarire 6004	Accuracy: ±40 ppm
Radiant Temperature Sensor	OS-542	Accuracy: ±2 °C, Resolution: 0.1 °C
Humidity Sensor	HIH-4000-003	Accuracy: 3.5%, Resolution: 0.5%
Data acquisition board 1	Sensor DAQ	Resolution: 13 bit, Sampling rate: 10 kS/s
Data acquisition board 2	NI-DAQ 6008	Resolution: 12 bit, Sampling rate: 10 kS/s

Table 1. Specifications for Data Acquisition Devices

Human subjects

The participants were recruited from voluntary applicants and a total number of 49 participants (Males = 24, Females =25) took the experiment. All participants were either undergraduates or graduate students at Lawrence Technological University (LTU), and all of them had healthy physical conditions without any significant health issues. The age, gender, height, body weight, and sleep hours of the previous night were surveyed. Table. 2 shows the demographic information drawn from the survey.

	Age			BMI			Sleep hours (Group 1) (≤ 6.5)	Sleep hours (Group 2) (≥7)	
Avg.	23.14			23.06			5.16	7.79	
St.Dev.	3.06			4.25			1.06	0.76	
Range	Junior 19-29	Mid-age 31-36	Sub Total	Normal Weight (< 23)	Overweight (≥ 23)	Sub Total	Partial Sleep Deprived (Sleep Group1) (≤ 6.5)	Normal Sleep (Sleep Group2) (≥7)	Sub Total
Female	24	1	25	18	7	25	8	17	25
Male	22	2	24	9	15	24	10	14	24
Total	46	3	49	27	22	49	18	31	49

Table 2. Summary of Demographics Information

Procedure for human subject experiments

The experiment for this study was approved by the LTU IRB (Institutional Review Board: #01418). A researcher collected the signed consent form before starting the experiment that also instructed the experiment procedure. Only a participant and research assistant stayed in the chamber during the experiment. Once he/she arrived, the participant stayed in a waiting area (22 °C) to stabilize his/her physiological conditions while filling out the consent form. Then, he/she was assigned to one of six temperature groups randomly (18 °C, 20 °C, 22 °C, 24 °C, 26 °C, and 28 °C). Based on the most frequently selected local body skin temperatures in the existing studies,[15] eight local body spots were chosen for this study as illustrated in Figure 2. Once the participant entered the chamber, eight skin temperature sensors were attached to the forehead, neck, upper chest, lower back, arm, stomach (Belly), inner wrist, and back wrist. The participant remained seated on the chair and took a survey on a laptop placed on the desk. The survey included the participant's demographics and thermal sensations. The thermal sensation survey was based on the Likert 7-point scale from ASHRAE PMV survey designation[4] (Table. 3). The thermal sensation survey was repeated three times for each participant during the experiment. Indoor temperature and local body skin temperatures were recorded every minute.
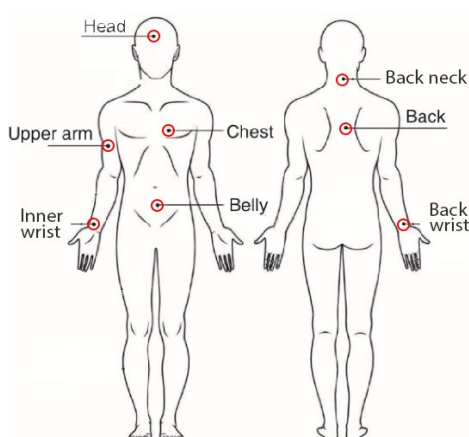
Figure 2. Measured local body spots

Overall Thermal	-3	-2	-1	0	1	2	3
Sensation	Very Cool	Cool	Slightly Cool	Neutral	Slightly Warm	Warm	Very Warm

Table 3. Thermal Sensation Questionnaire with Likert 7-Point Scale.

Statistical Analysis

The collected data were analyzed by multiple statistical analysis methods, including independent T-test, correlation analysis, and stepwise regression model to explore the relationship between the indoor temperature, the local body skin temperatures, and the overall thermal sensation as well as exploring the possible impact of the partial sleep deprivation on the mentioned variables and the relationship between them. The analyses were performed at a 95% significant level. Statistical analysis software, including SPSS[16] and Minitab,[17] was used for the analysis. In addition, the study performed a decision tree by using the J48 decision tree provided by WEKA.[18] A (J48) decision tree is a machine-learning algorithm for classification based on an iterative Dichotomiser. Considering the existing studies and the accuracy of the generated model and classification,[19] the J48 decision tree model was selected for this study.

RESULT

The relationship between local body skin temperature and indoor temperature under partial sleep-deprived condition

Each local body spot showed different impacts by sleep-deprived conditions. The two sleep groups showed a significant difference in the stomach, chest, and neck skin temperatures at all assigned indoor temperature groups except for 20°C (Figure.3), while back and arm skin temperatures demonstrated a significant difference between the sleep groups at all assigned indoor temperature groups (Figure.3). Additionally, partial sleep deprivation affected wrist-in skin temperature significantly at all assigned indoor temperature group except 22 °C and 26 °C. The wrist-back skin temperature, in contrast, showed a significant difference between the sleep groups for only 18 °C and 24 °C. The correlation analysis verified that the skin temperatures of the stomach, chest, neck, and back of sleep group 1 had a weaker correlation with indoor temperature compared to sleep group 2 (table.5). In contrast, the local body skin temperatures located apart from the core body temperature in sleep group 1 showed a stronger correlation with the indoor temperature compared to sleep group 2 (Table.5).

Local body Skin Temperature		Stomach	Back	Chest	Neck	Forehead	Arm	Wrist - in	Wrist-back
S.G.1	Pearson R	.390	-.082	.188	.240	.538	.535	.676	.655
	P- Value	<.001	<.001	<.001	<.001	<.001	<.001	.000	.005
S.G.2	Pearson R	.465	.390	.306	.263	.264	.335	.478	.527
	P- Value	<.001	<.001	<.001	<.001	<.001	.000	.000	.000

Table 5. Correlation analysis between indoor temperature group and skin temperature by sleep group

Figure.3 indicates that skin temperature for the wrist-in, wrist-back, and arm increases when indoor temperature rises. However, the rest of the local body skin temperatures in both sleep groups demonstrated inconsistent and fluctuated patterns. Furthermore, the local body skin temperatures relatively apart from the core body are generally higher in the partial sleep-deprived group, except in the arm and neck. Also, the forehead skin temperature is generally higher in sleep group 1 than the one in sleep group 2. In contrast, the local body skin temperatures of the back and neck, which are core body areas, showed lower skin temperature in sleep group 1 compared to sleep group 2 (Figure.3). Thus, it can be concluded that the local body skin temperature, far from the core body (e.g. wrist-in, wrist-back, and arm), is more sensitive to the indoor thermal environment in partially sleep-deprived people than in normal people.
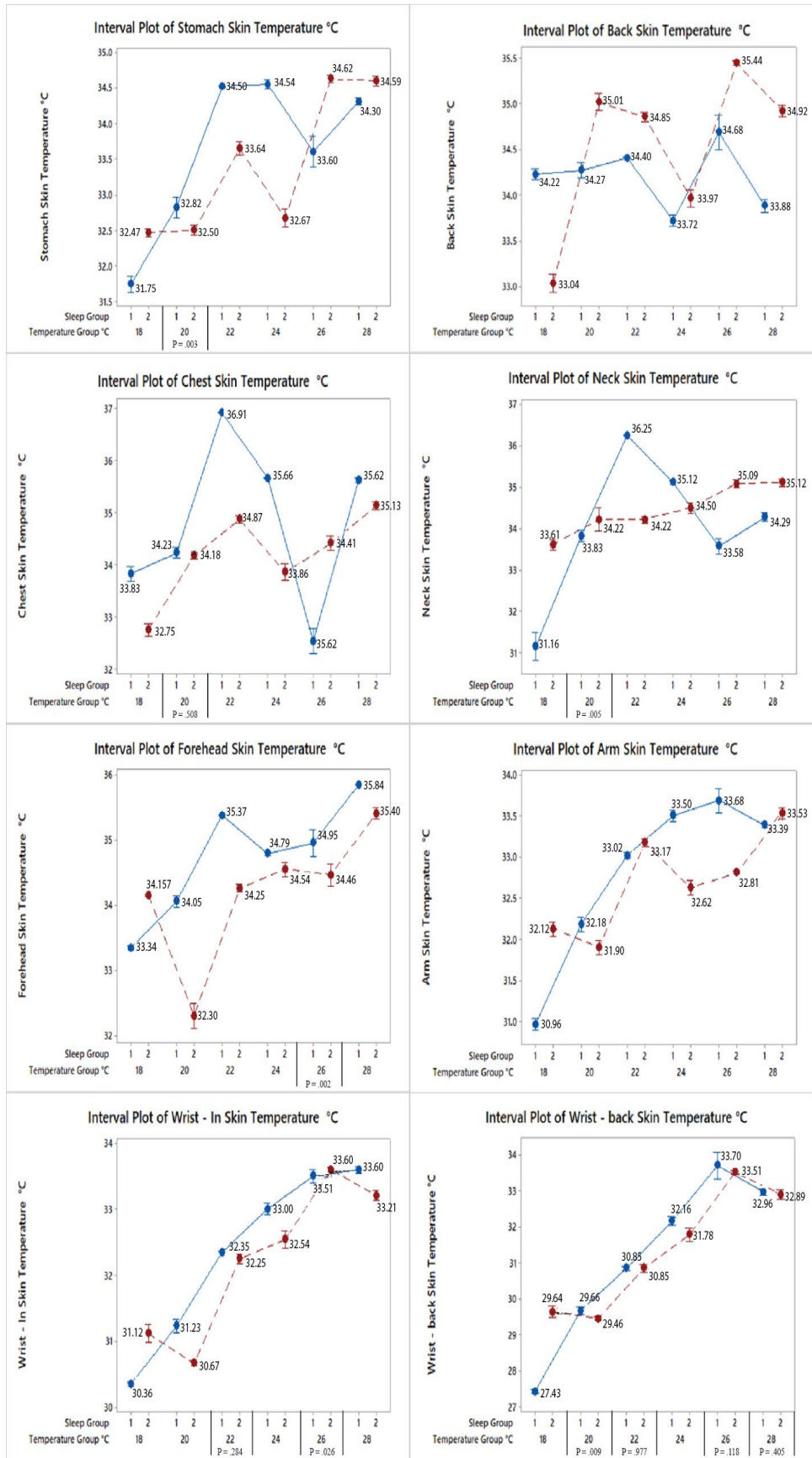
Figure 3. Interval Plots for Skin Temperature by Sleep Groups and Indoor Group Temperature

The impact of the partial sleep deprivation on the relationship between the local skin temperatures and overall thermal sensation

The statistical analysis revealed a significant correlation (p <.001) between the overall thermal sensation and all selected local body skin temperatures in sleep group 2 (Table.6). Nevertheless, only wrist-back skin temperature showed an acceptable correlation (r=.517) followed by wrist-in (r=.447) and arm (r=.356). In contrast, the partial sleep deprivation group demonstrated different results. The analysis showed that only the forehead, arm, wrist-in, and wrist-back had a significant correlation (p<.001) with the overall thermal sensation. These local body skin temperatures indicated a good correlation for the arm (r=.383), wrist-back (r=.455), and wrist-in (r=.493), except the forehead had a relatively weak correlation (r=.284) (Table.6).

Local body Skin Temperature		Stomach	Back	Chest	Neck	Forehead	Arm	Wrist - in	Wrist-back
S.G.1	Pearson R	-.001	.045	-.047	-.046	.284	.383	.493	.455
	P- Value	.949	.006	.005	.005	<.001	<.001	<.001	<.001
S.G.2	Pearson R	.200	.224	.156	.147	.084	.356	.447	.517
	P- Value	<.001	<.001	<.001	<.001	<.001	<.001	.000	.000

Table 6. Correlation analysis between local body skin temperatures and the overall thermal sensation by sleep group

Gender has been verified as one of the significant factors contributing to differences in thermal sensation[20.] Thus, further analysis was conducted, considering the gender difference (Table.7). The results indicated that, in general, the correlations between the local body skin temperatures located far from the core body temperature (e.g. Arm, wrist-in, and wrist-back) and the overall thermal sensation were stronger in the female group, compared to the male group (Table.7). Furthermore, the correlation between the arm skin temperature and the overall thermal sensation was stronger in male sleep group 1 (r=.454) compared to sleep group 2 (r=.278). In contrast, the correlation between arm skin temperature and overall thermal sensation in female sleep group 2 (r=.362) was stronger compared to sleep group 1 (r=.270). However, the correlation between wrist-back skin temperature and overall thermal sensation in female sleep group 1 was stronger (r=.771) compared to sleep group 2 (r=.670), while the correlation in male sleep group 2 was stronger (r=.501) compared to sleep group 1 (r=.389). Both genders demonstrated a stronger correlation between wrist-in skin temperature and overall thermal sensation in sleep group 1 compared to sleep group 2 (Table.7).

For local body skin temperatures close to the core body (e.g. Stomach, back, chest, and neck), the correlations of these local body skin temperatures with the overall thermal sensation, in general, were higher in female sleep group 2 than in male sleep group 2 (Table.7). In sleep group 1, the correlation between certain local body skin temperatures, such as chest and forehead, and overall thermal sensation were higher in the female group compared to the male group, while others were higher in the male group than in the female group, such as neck skin temperature. Some of the local body skin temperatures demonstrated a negative correlation with the overall thermal sensation, such as the stomach and neck in the female group, and back and chest in the male group (Tablel.7).

From these results, it can be concluded that females are more sensitive to the thermal environment than males in both sleep-deprived and normal conditions. In addition, it can be presented that the most effective local body skin temperature to estimate overall thermal sensation for sleep deprived occupants, in general, is the arm, followed by wrist-in. For female sleep-deprived occupants, the wrist-back skin temperature appears to be the best factor . Moreover, the skin temperature that has the potential to estimate overall thermal sensation in sleep group 2 for both genders is the wrist-back, as it exhibits the highest correlation with the overall thermal sensation.

Local body spot		Stomach		Back		Chest		Neck		Forehead		Arm		Wrist - in		Wrist-back	
Gender		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
S.G.1	Pearson R	.262	-.438	-.115	.091	-.207	.276	.355	-.323	.212	.421	.454	.270	.418	.704	.389	.771
	P- Value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	.000
S.G.2	Pearson R	.129	.417	.067	.385	.103	.357	.460	.140	.264	-.097	.278	.362	.274	.490	.501	.670
	P- Value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001

Table 7. Correlation analysis between local body skin temperatures and overall thermal sensation by sleep group and gender

Development of Thermal comfort predictive model

The previous section identified wrist-in and wrist-back skin temperatures that have a significant correlation with thermal sensation in both sleep groups, and gender also had a significant impact on thermal sensation by sleep group. Thus, this study selected gender and wrist-in/wrist-back skin temperatures as variables to predict the occupants' overall thermal sensation, considering their sleep conditions. To develop a predictive model, this study used one of the classification models, J48 algorithm, to generate a decision tree model. The model used the overall thermal sensation as a nominal value, and the wrist-in/wrist-out skin temperatures, indoor temperatures, sleep group (condition), and gender were used as parameters. Attached appendex.1 represents the established decision tree model. To generalize the decision tree model, it was validated by adapting a 10-cross validation. Table.8 shows the confusion matrix of the model. The accuracy of the classification appeared higher than 95%, thus it is safe to say that the developed model estimate the overall thermal sensation of partial sleep-deprived occupants accurately based on the wrist-in and wrist-back skin temperature collected.

Accuracy: 98.87%
a= Neutral, b= Slightly Cold, c=Slightly Warm, d= Warm, e= Cold

a	b	c	d	e
2393	3	17	0	0
1	3083	9	15	1
13	10	3012	0	0
0	41	0	1284	0
0	3	0	0	190

Table 8. Confusion matrix of the estimated classification (J48)

DISCUSSION

The impact of sleep deprivation and partial sleep deprivation on humans' physiological responses has been examined previously.[21] These studies used various biomarkers, such as local body skin temperatures, heart rate, and blood pressure, to investigate the relationships. However, some studies

focused solely on humans' cold tolerance under cold conditions[22] while others focused on heat tolerance under conditions of heat stress.[23] In contrast, this study adds significant insight by verifying the impact of partial sleep deprivation on occupants' overall thermal sensation under the recommended thermal environment by ASHRAE-5528. This can provide a deeper understanding of how sleep deprivation affects the occupant's thermal sensation and their physiological signals in general indoor thermal environments.

Although the previous studies reported on occupants' subjective evaluations, such as thermal sensation, they did not find any significant difference in the subjective evaluation between the sleep groups, possibly due to the limited thermal conditions (e.g. 35°C and 40°C). However, this study revealed a significant difference in the overall thermal sensation between the two sleep groups at indoor temperatures of 20 °C, 26 °C, and 28 °C (p<.001). This study also confirmed that wrist-back skin temperature has the strongest correlation with overall thermal sensation in the normal sleep group (SG2), while wrist-in skin temperature showed the strongest correlation with overall thermal sensation in the sleep-deprived group (SG1). Also, the correlation between indoor temperature and skin temperatures of the forehead, arm, wrist-in, and wrist-back in SG1 was stronger than the correlation for SG2, as well as the correlations reported in previous studies. These findings verify that the sleep deprivation significantly affects the occupant's thermal sensation and some local body skin temperatures, demonstrating the potential of a few local body spots as predictive factors for the occupant's thermal sensation under sleep-deprived conditions. These findings present an interesting opportunity to develop a human-sensing indoor thermal environment control system based on the occupant's physical conditions, such as sleep deprivation.

The estimation of the overall thermal sensation is a critical step to provide personalized thermal comfort. Previous studies have used various human factors such as arm, forehead, and back skin temperatures, as well as gender and body mass index, to predict the occupant's overall thermal sensation. Additionally, this study proposed a new prediction model to estimate an occupant's overall thermal sensation by incorporating sleep condition as a variable. The proposed model showed a 98.87% accuracy, which is higher than the models in the existing studies (e.g. 82.51%[18] and 94.39%[39]). Thus, it is clear that including sleep conditions in thermal sensation prediction models helps achieve higher accuracy for personalized occupant's thermal comfort.

Although the new findings of this study are significant, the current study didn't find any significant difference in overall thermal sensation between the two sleep groups at the indoor temperature 18°C, 22°C, and 24°C. This could be attributed to the sample size, indicating the need for further investigations with a larger sample size in future research.

CONCLUSION

This study examined the impact of partial sleep deprivation on the relationship between overall thermal sensation, local body skin temperatures, and indoor thermal environment. The study revealed that the sleep condition may significantly impact the occupant's thermal sensation and skin temperatures in normal indoor temperatures. The study also showed that during the sleep-deprived condition, the skin temperatures far from the core temperature, specifically the arm, wrist-in, and wrist-back, had the strongest correlation with the indoor temperature. In addition, it was demonstrated that the partial sleep-deprived group may have more sensitivity to the thermal environment compared to the normal sleep group. Furthermore, the study revealed that the best local body skin temperatures to estimate the overall thermal sensation for sleep-deprived male occupants were the arm and wrsit-in skin temperatures, while the most significant factor for sleep-deprived female occupants was the wrist-back skin temperature. Overall, the female group in both sleeping conditions was found to be more sensitive to the thermal environment compared to the male group. These findings can contribute

to the development of a more accurate thermal comfort predictive model by incorporating sleep conditions as a critical factor.

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WALKABILITY ASSESSMENT OF MAGALLANES AND SPOLARIUM STREET IN CEBU CITY

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INTRODUCTION

Walking is a key factor in the promotion of healthier, environmentally friendly and socially active cities. It also provides sustainable economic benefits in commercial areas with stores and stalls along streets, attracting customers and pedestrians to stroll around and purchase their necessities. Walkability demonstrates a city's quality of urban design. It discerns how the urban environment is able to respond to the accessibility of the local community and its users.[1]

Magallanes Street and Spolarium Street are located in the Downtown area of Cebu City. It connects 3 significant historic churches and public spaces in the area namely, the San Nicolas de Tolentino Parish which was known to be the most prolific church in Cebu during the Spanish colonial era;[2] the Freedom Park, where Cebuanos used to hold protests during the American colonial era to denounce unjust policies of the American colonists;[3] and the Plaza Sugbo which is where the Magellan's Cross, Basilica Minore del Sto. Niño and Cebu City Hall are located.

These two streets are also lined with various commercial establishments like banks, pet shops, hardwares, fruit stands, drugstores, and flower shops to name a few. This results in high pedestrian traffic in the area. Pedestrians and stalls have occupied parts of the vehicle lanes in the area causing traffic congestion and hazard. The sidewalks are also uneven and ragged. On rainy days, the streets are flooded, making it unpassable. The high density of wayfarers also makes these streets crime attractors.

In this research, the walkability of the Magallanes and Spolarium Streets will be assessed in terms of the users perception of the area, socio-demographic factors, environmental factors, socio-economic factors and socio-cultural factors.

METHODS
Area of Study

The Spolarium St. and Magallanes St. are located in the Downtown area of Cebu City. It passes through Brgy. San Nicolas Proper, Brgy. Pahina San Nicolas, Brgy. Pahina Central, Brgy. Kalubihan, Brgy. Ermita, Brgy. Pasil, and Brgy. Sto. Niño (Figure 1). It also connects several significant historical and cultural landmarks in the city (Figure 2). Several commercial establishments are also located within the streets thus making it one of the busiest streets in the area with high pedestrian traffic.

Figure 1. Barangays where Spolarium and Magallanes Streets travers

Figure 2. Significant landmarks along Spolarium and Magallanes Streets

Assessing Walkability

In order to assess the walkability of Spolarium and Magallanes Street, a survey was conducted on a random sample size of 30 respondents from the population of Cebu City. Survey items were developed from a review of literature in measuring walkability,[4] from previous survey work relating to community needs[5] and walkable communities,[6] and from content analyses of selected case studies.[7] The questionnaire and interview questions were subdivided into sections:

1. Personal Data and Socio-Demographic questions

2. Objectives and Significance of Walking

3. Perception and Experience in Downtown Cebu

4. Perception and Experience in Magallanes and Spolarium Street

a. Safety of Pedestrian Infrastructure in Magallanes and Spolarium Street

b. Pedestrian Infrastructure Walkability in Magallanes and Spolarium Street

c. Socio-Economic Factors of Walking in Magallanes and Spolarium Street

The purpose of having a subdivided set of questions (Table 1) is to draw out relevant information of the correlation between socio-demographic data with the participants' objectives of walking and their perception and experience of walking in Spolarium and Magallanes Street. Close ended questions were used in the data gathering of personal data while both close ended and open ended questions were used in the data gathering of personal data while both close ended and open ended questions were used in the objective and significance of walking as well as in the perception and experience of walking in Downtown Cebu. Likert scale was used to rate the different factors relating to the respondents' perception and experience in Magallanes and Spolarium Streets.

Factor	Indicator	Purpose
Safety of Pedestrian Infrastructures in Magallanes and Spolarium St.	Streets are well lit along Magallanes and Spolarium St.	Indicates the perception of safety on the streets
	Sidewalks are too narrow in Magallanes and Spolarium St.	Indicates the perceived scale of the streets
	Traffic signs in Magallanes and Spolarium St. are very visible to pedestrians and drivers	Indicates the perception of signage and warning signs in the streets
	Street signals in Magallanes and Spolarium St. give enough time to walk across the street safely	Indicates the perception of safety on the streets
	Drivers give way and prioritize pedestrians in Magallanes and Spolarium St.	Indicates the perception of safety on the streets
	There are unsmooth sidewalks and open manholes along Magallanes and Spolarium St.	Indicates the comfort level of people on the streets
	Bus stops and jeepney stops are accessible in Magallanes and Spolarium St.	Indicates the accessibility of public transportation on the streets
	Proper lanes provided for motorized and non-motorized vehicles and pedestrians along Magallanes and Spolarium St.	Indicates the organisation of users on the streets
	Fear of pickpockets and other delinquents in Magallanes and Spolarium St.	Indicates the perception of safety on the streets
Pedestrian Infrastructure Walkability in Magallanes and Spolarium St.	Sidewalks in Magallanes and Spolarium St.	Indicates the comfort level of people on the streets
	Pedestrian lanes in Magallanes and Spolarium St.	Indicates the connectivity of streets
	Pedestrian islands in Magallanes and Spolarium St.	Indicates the connectivity of streets
Socio-Economic Factors of Walking in Magallanes and Spolarium St.	It's convenient to shop along Magallanes and Spolarium St. when walking	Indicates the economic sustainability of the streets
	You can buy your needs from sidewalk vendors along Magallanes and Spolarium St.	Indicates the economic vibrancy of the streets
	Good bargain in shops along Magallanes and Spolarium St.	Indicates the economic vibrancy of the streets
	You prefer using public transportation when in Magallanes and Spolarium St.	Indicates accessibility and variety of public transportation
	There are diverse shops along Magallanes and Spolarium St.	Indicates the economic vibrancy of the streets
	Local street food sold along Magallanes and Spolarium St. are preferred than fast food and restaurants	Indicates the economic vibrancy of the streets
	Churches and museums are accessible from Magallanes and Spolarium St.	Indicates the historical and cultural value of the streets
	There is a nostalgic feeling while strolling through Magallanes and Spolarium St.	Indicates the sense of place and familiarity of the streets
	Historical markers in Magallanes and Spolarium St. are visible and informative	Indicates the historical and cultural value of the streets
	You feel more connected with the community when passing through Magallanes and Spolarium St.	Indicates the sense of place and familiarity of the streets

Table 1. Factors and purposes to analyse the perception and experiences of pedestrians

RESULTS

Participant Profile

Of the 35 survey respondents, 20 are female (57.1%), 11 are males (31.4%), and 4 identify themselves as gay (11.4%) (Figure 3). 34 of the respondents are within the 18-29 year old age bracket and only 1 is within the 30-39 year old age range (Figure 4). The marital status of the majority of the respondents are also single, only 1 respondent is married; 4 of the 35 respondents are persons with disabilities.
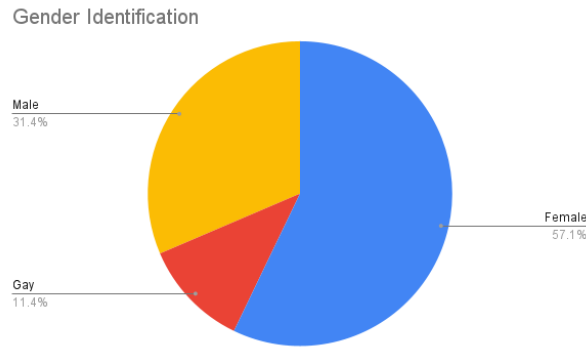
Figure 3. Chart of gender identification of respondents
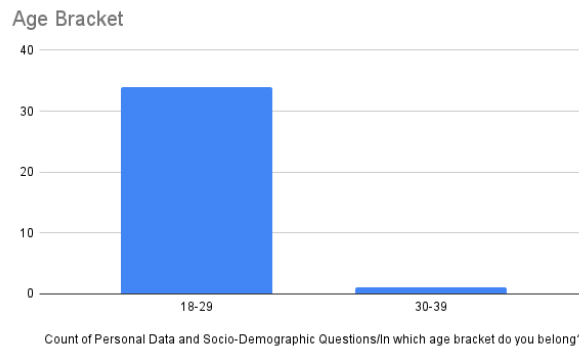
Figure 4. Age bracket results of the respondents

In terms of educational attainment, 15 of the respondents are High School Graduates (42.9%), 19 are College Degree holders (54.3%) and 1 Postgraduate Degree holder (2.9%).

Majority of the respondents are residing in Brgy. Lahug, followed by Brgy. Labangon (Figure 5). Most are also born and raised in Cebu. For the employment status, 57.1% are not employed and 42.9% are currently employed.

Figure 5. Chart of the respondents' Barangay residences

The social class status is presented on Figure 6. The annual income brackets used in this study are based on the Philippine Institute for Development Studies (PIDS) Profile and Determinants of the Middle-Income Class in the Philippines 2018 discussion paper. As a result of the survey, 54.3% of the respondents belong to the "Poor", 20% belong to the "Low Income" class, 14.3% belong to the "Middle Middle Income" class and 11.4% belong to the "Lower Middle Income".

Figure 6. Average annual family income of respondents

Objectives and Significance of Walking

In order to understand the respondents' walking habits, walking survey questions were included in the questionnaire. The results yield to poor walking habits of the respondents wherein majority walk only for an average of less than 500 meters each day or less than 1,000 steps a day. Significantly lower than the ideal daily average of +4,000 steps for maintaining femoral bone density in adults.[8]
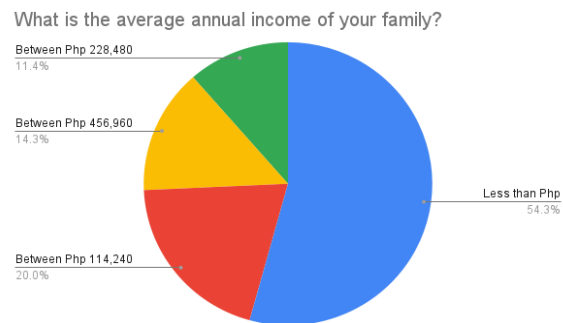
Most of the respondents also walk for necessities like going to school or office to buy their needs from groceries or malls, only a few walk for leisure or exercise. In contrast to these results, the majority of the respondents actually consider walking as an enjoyable form of exercise but certain factors prevent them from walking leisurely or as a form of exercise such as safety, security and social problems in their neighborhood, sidewalk design issues, and environmental problems such as humidity and pollution. Respondents pointed out several factors that would persuade them to walk more such as improved sidewalk and road designs for the infrastructure and essential errands and health benefits as their personal motivation.

Perception and Experience in Downtown Area of Cebu City

The Downtown area of Cebu City is known to be an area with high pedestrian traffic due to several commercial establishments, educational and government institutions and historical sites. In the survey conducted for this study (Figure 7), all of the respondents have been to the Downtown area of Cebu City. Most of them have visited the area mostly for economic activities such as shopping, some also would visit historical sites and eat local street food in the area. In relation to the high pedestrian population and lack of parking spaces in the area, most of the respondents prefer utilizing public transportation instead of using private vehicles.
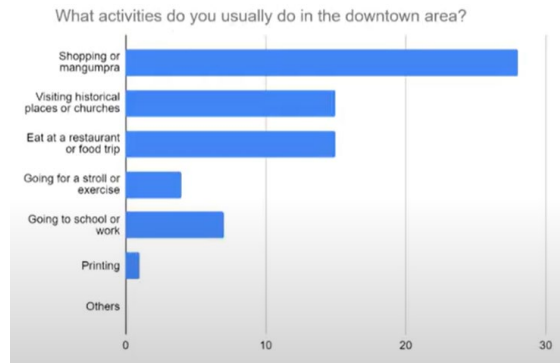
What activities do you usually do in the downtown area?

Figure 7. Chart of the activities of respondents in the Downtown area

Perception and Experience in Magallanes and Spolarium Street

Respondents were surveyed on how they perceive the pedestrian infrastructure and their personal experience in walking along Magallanes and Spolarium Street.

Most of the respondents passed through Magallanes and Spolarium Street to visit significant historical sites such as the Basilica Minore del Sto. Niño de Cebu, Magellan's Cross, and Plaza Sugbo. Some would pass by these streets to visit commercial establishments such as the Carbon Market and other stores lined along Spolarium and Magallanes Street.

Which places did you go to when you passed through Magallanes or Spolarium St.?
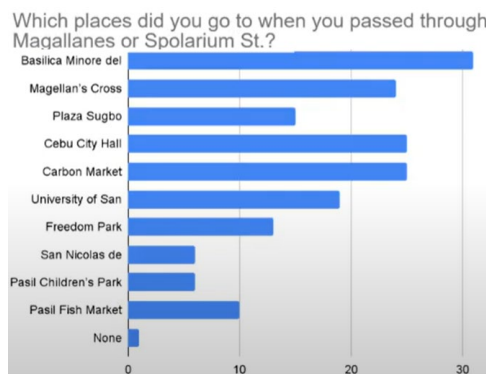
Figure 8. Chart of the activities of respondents in the Downtown area

In terms of the perception of the respondents on the pedestrian infrastructure of the streets, specifically the sidewalks, the majority of the responses pointed out to safety and security problems of the streets due to obstructions like garbage stalls. Sidewalk design issues were also observed by the respondents, especially the inconsistent sidewalk widths. Because of these problems, the respondents generally felt unsafe in Spolarium and Magallanes Street. Several safety and security issues were mentioned in the responses such as fear of pickpockets, they are anxious or always in a hurry whenever they walk along these streets, and that they have to always be alert. Some respondents on the other hand consider walking along these streets as fun and challenging.

Difference of the Perception and Experiences in Magallanes & Spolarium Street related to Social Income Class

The respondents of the survey are classified into 4 social income classes, respondents who are within the less than Php 114,240 bracket belong to the "Poor Income Class", between Php 114,240 – Php 228,590 belong to the "Low Income Class", between Php 228,480 – Php 456,960 belong to "Lower Middle Income Class", and between Php 456,960 – Php 2.2 million belong to the "Middle Middle

Income Class".[9] The survey yielded 19 respondents under "Poor Income Class", 8 under "Low Income Class", 4 under "Lower Middle Income Class" and 5 respondents under "Middle Middle Income Class".

In order to determine if social income classes affect the perception and experiences of users in Spolarium and Magallanes Street, respondents were asked to rate their agreement with each question on a 5-point Likert scale ranging from 5 (strongly agree) to 1 (strongly disagree). A sample close-ended question was reported in Table 2 below.

Safety of Pedestrian Infrastructures in Magallanes and Spolarium St.	5	4	3	2	1
Streets are well lit along Magallanes and Spolarium St.					

Table 2. Sample of a close-ended question in the survey.

Descriptive statistics and a series of independent two-sample t-test was used to interpret the results of each factor in the Likert scale questionnaire in the survey.

In the independent two-sample t-test for the safety of pedestrian infrastructures in Magallanes and Spolarium Street questions, the statistical difference between the 4 social income classes was investigated .To present the method of analyses, the statistical test for the statement "Streets are well lit along Magallanes and Spolarium St." will be discussed. The hypotheses are defined as H_0: $\mu_1 = \mu_2$ and H_1: $\mu_1 \neq \mu_2$ as the null and alternative hypotheses respectively. The following formula was used to calculate the test statistic t:

$$t = \frac{(\overline{x}_1 - \overline{x}_2) - (\mu_1 - \mu_2)}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

(1)

Wherein $x_{1\,(bar)}$ is the mean of the "Poor" sample, $x_{2\,bar)}$ is the mean of "Low Income" sample, μ_1 is the mean of "Poor" population, μ_2 is the mean of "Low Income" population, s_1 is the standard deviation of "Poor" sample, s_2 is the standard deviation of "Low Income" sample, n_1 is the size of the "Poor" sample, and n_2 is the size of the "Low Income" sample. The t values for the sample social classes were presented in Table 3 with the significance level alpha = 0.05.

	(Poor)	(Low Income)
Mean	2.631578947	2.375
Variance	0.9122807018	1.125
Observations	19	8
Hypothesised Mean Difference	0	
df	12	
t Stat	0.5907508914	
P(T<=t) one-tail	0.2828239503	
t Critical one-tail	1.782287494	
P(T<=t) two-tail	0.5656479005	
t Critical two-tail	2.178812801	

Table 3. Poor vs. Low Income Independent Two-Sample t-Test results

Since *p* = 0.57 (2 tail) is greater than the significance level alpha = 0.05, the null hypothesis H_0: $\mu_1 = \mu_2$ is not rejected. This trend of higher *p*-value than the significance level was prevalent among all 4 social class responses in most of the close-ended questions in the Likert scale. It was found that there is no significant difference between the perception and experiences of the different social income classes in walking along Spolarium and Magallanes Street.

Difference of the Socio-Economic Factors of Walking in Magallanes and Spolarium Street Related to Social Income Class

The same methods were used to determine if social income classes affect the perception of the socio-economic factors of walking in Magallanes and Spolarium Street, a sample close-ended question was reported in Table 4 below.

Socio-Economic Factors of Walking in Magallanes and Spolarium Street	5	4	3	2	1
Good bargain in shops along Magallanes and Spolarium St.					

Table 4. Sample of a close-ended question relating to socio-economic factors in the survey

In this analysis, the difference between the "Poor Income Class" and the "Middle Middle Income Class" was investigated since there may be a difference in the spending behaviour between the 2 social income classes as concluded by Wangmo's assessment of financial literacy stating that lower income level has lower financial literacy as compared to respondents with higher income level.[10] The null hypothesis is defined as H_0: $\mu_1 = \mu_2$ and H_1: μ_1 μ_2 as the alternative hypotheses. The results of the independent two-sample t-test are presented in Table 5 below.

	(Poor)	(Middle Middle)
Mean	3.947368421	3.4
Variance	0.9415204678	1.3
Observations	19	5
Hypothesised Mean Difference	0	
df	5	
t Stat	0.9838111322	
P(T<=t) one-tail	0.1851939383	
t Critical one-tail	2.015048342	
P(T<=t) two-tail	0.3703878766	
t Critical two-tail	2.570581835	

Table 5. Poor vs. Middle Middle Income Independent Two-Sample t-Test results

The results yield to $p = 0.37$ (2 tail) is higher than the significance level alpha = 0.05. Therefore, the null hypothesis H_0: $\mu_1 = \mu_2$ is not rejected. It was concluded that the level of social income classes does not significantly affect the socio-economic factors of walking in Magallanes and Spolarium Street.

DISCUSSION AND CONCLUSION

Through this assessment, we are provided with an initial reflection of the users perception of the significance of walking and the walkability of the Spolarium and Magallanes Streets. This could highlight some factors that need improvement to have walkable streets in the Downtown area of Cebu City especially in terms of the security and safety as indicated in the thematic analysis of the open-ended questions of the survey regarding their description about the sidewalks of Spolarium and Magallanes Street. Pedestrian infrastructures such as the sidewalks, pedestrian lanes, and traffic signs also affect the experiences of the users of the streets. These are highly considered by the respondents as key factors to persuade them to walk often.

Economic and social or cultural activities also play an important role in the walkability of Spolarium and Magallanes Street (Figure 7). Respondents would usually pass through the area of study in order to visit significant historical landmarks and commercial establishments as indicated in Figure 8.

It is also found that the social income classification of the users does not significantly affect the perception of walkability in Spolarium and Magallanes Street. Although it is imperative to note that much of the respondents are from the lowest social income classification indicated in Figure 6. This may signify that there is no strong evidence that social income class level does not affect the perception of walkability in the area of study because of the lack of samples in the study.

In conclusion, Spolarium and Magallanes Streets are considered walkable in terms of its connectivity to significant commercial establishments and historical landmarks. The site of the study is accessible to all walks of life, regardless of their socioeconomic status, and provides a sense of community for the users. The infrastructure design of Spolarium and Magallanes Streets may need to be improved further to create a much safer and comfortable environment for pedestrians.

NOTES

[1] Balletto Ginevra et al., "Walkability and City Users. Critical Analysis of Opportunities and Risks," *SUPTM 2022: 1st Conference on Future Challenges in Sustainable Urban Planning & Territorial Management*, 2022, https://doi.org/10.31428/10317/10466.

[2] Quennie S. Bronce, "Sto. Niño de Cebu: El Capitan General," *The Philippine Star*, January 17, 2013, https://www.philstar.com/cebu-news/2013/01/17/897988/sto-nio-de-cebu-el-capitan-general.

[3] Cherry Ann T. Lim, "New Freedom Park to Open in October," *Sunstar*, August 6, 2022, https://www.sunstar.com.ph/article/1937077/cebu/local-news/new-freedom-park-to-open-in-october.

[4] Marianne Knapskog et al., "Exploring Ways of Measuring Walkability," *Transportation Research Procedia* 41 (2019): 264–82, https://doi.org/10.1016/j.trpro.2019.09.047.

[5] Department for the Aging, *"City for All Ages Community Needs Assessment Survey Implementation Overview for Community Leaders"* (New York City: Department for the Aging, 2010).

[6] Molly Reilly et al., "National Walking Survey" (Portland: America Walks, September 2011).

[7] Ann Forsyth and Michael Southworth, "Cities Afoot—Pedestrians, Walkability and Urban Design," *Journal of Urban Design* 13, no. 1 (February 8, 2008): 1–3, https://doi.org/10.1080/13574800701816896.

[8] Katherine A. Boyer et al., "Maintaining Femoral Bone Density in Adults: How Many Steps per Day Are Enough?," *Osteoporosis International* 22, no. 12 (February 12, 2011): 2981–88, https://doi.org/10.1007/s00198-011-1538-9.

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[10] Phurpa Wangmo, "Assessing the Level and Impact of Financial Literacy on Individual Saving and Spending Habits in Royal Institute of Management" (dissertation, RIM, 2018), http://202.144.157.211:8080/jspui/handle/1/301.

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BLACK QUEER INTERIORITIES

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INTRODUCTION

Interiority refers to sets of affective formations that manifest alongside its own internal senses. Architect and professor Ali Rahim argues that affects both include a capacity to be affected and affect.[1] Interiorities, I contend, refer to patterns of the production of physical sites that represent Black queer public culture across spatialities and typologies, including temporal and geographic scales. In this paper, I discuss instances of restrictive zoning and other modes of structural power to understand its implication on interiorities of Black queer public culture. By an interiority of Black queer public culture, I mean a set of spatialities that grapple with the physical and mental representations of space that engender Black queer performances, histories, and legacies that resist white cisgender heteronormativity. First, I define interiorities as a design solution, then I discuss how interiorities have been reimagined in literature over time; and finally, I identify an appropriate research method to explore Black queer interiorities.

Object

Andrea Mina's 1953 miniature/object won "Best in Show" at the Interior Design Education Council (IDEC) Design Awards.[2] Considering architecture describes and supports human occupation, Mina takes architecture a step further to describes his work as disjuncture. The object shown in Figures 1-3—which is intentionally material and not metaphysical—engenders interiority through evoking inhabitation through its interior architecture. From my perspective, Mina's object is intentionally in a state of becoming, its form is imaginative because the viewer recognizes their values through the object rather than the object defining or reflecting societal values. Mina's object is my starting point to complicating architecture and design's research methods and strategies that are predominately quantitative. My goal is to start a dialogue that thinking through our current definitions of interior/interiority and research methods and wonder how we—as scholars and professionals—will attend to human-scale experiences and values of interiority such that we design interiors that are liveable for users.

Figure 1. Intimate Immensities Miniature, An Interior Architecture, Andrea Mina 1953[3]

Figure 2. Intimate Immensities Miniature, An Interior Architecture, Andrea Mina 1953[4]

Figure 3. Intimate Immensities Miniature, An Interior Architecture, Andrea Mina 1953[5]

LITERATURE

Writing in the 1980s, C.J. Hewlett's "The Future in Interior Design" posits that interior design is tasked with representing interiority.[6] By representing interiority, interior design perceives, demonstrates, and disturbs the interior-exterior disciplinary boundaries. In this paper, an interior transcends a building's interior; and thus, includes a neighbourhood, a borough, a college campus, a downtown, or a city. Interior design stretches beyond a fixed room/s of a building. Hewlett's argument is rooted in the perspective that interiority is a design solution. As a design solution, interiority indexes tiers of awareness to which users responds including our aspirations, functions, individualism, myths, place, structure, who, why, and probably others.

Approximately ten years later, Interior Design Professor Cathy Ganoe proposed interior design as a discipline should adopt a narrative method to explain interiorities.[7] This narrative method that is grounded in postmodernism focuses on "internal values regarding social and personal awareness."[8] Following Ganoe's estimation, interior designers are tasked with curating interior spaces at various scales that reflect identities, values, and histories of users, designers, and/or both. For example, most interiors including workplace design reflects a certain design trend that aligns with social and cultural turns that interior design adopts modernism and postmodernism. Considering Ganoe's methodological advancement to interior design's impact on placemaking constitutes a shift to respond to values that move interior design trends and possibilities forward. Additionally, once interior design takes up the task of thinking through and producing interiorities, new sets of questions and possibilities arise. Design scholar Suzie Attiwill says when we consider interior design as a practice of designing interiors and interiorities, potential epistemic questions seek answers: (1) what is an interior? (2) how is an interior? And (3) when is an interior?[9]

In *Design Principles and Practices*, Petra Simona Perolini argues that Interior design's most important responsibilities are not solely visual, technological, object-oriented, or materialistic, but

rather interiority. Interiority, as defined by Perolini, can be defined as a process within a person that reflects an individual's unique awareness of the world and a psychological relationship to the world that is meaningful in ways specific to individual consciousness.[10] Such processes include the need to sense introspection and reflect on one's own life experience and to understand this experience in a way that is supported by language, allowing for communication of personal experience with others. Similarly, Design scholar Jacqueline Power says the concept of interiority has been proposed as a framework through which to expand the definition of an interior.[11] The expansion is a "means of engagement that is not necessarily attached to building."[12] These approaches to interior design require some level of historical and existing knowledge that is consequently translated into a narrative for users' consumption.

RESEARCH DESIGN METHOD: NARRATIVE

As proposed by Ganoe, narrative is an appropriate design method that interior designers and thinkers could mobilize to understand the interconnectedness across identity, place, and interiority.[13] Users' understandings of their place, their engendered identities, and their spatial possibilities are projected in interiorities. For example, interior designers and thinkers could use narrative to identify and explore minoritarian communities' sense of belonging in Saint Paul, Minnesota's Rondo neighborhood. Interiority is shaped by what one sees and hears (senses) across private and public space; environmental safety, including air quality, cleanliness, access, and connectivity. [14] Therefore, interiority is shaped by both material and immaterial domains of space. Taking this further, interiority refers to moments of encounter between users and physical objects. However, it is important to recognize that interiority is conditioned by land use policies that reproduce patterns of urbanization; and therefore, political, economic, and social oppressions, and capitalism.

Rondo, Saint Paul, Minnesota, USA

Saint Paul's Rondo Neighborhood—illustrated in Figures 4 and 5— is a historic Black neighborhood. Prior to the 1950s, Rondo boasted several businesses that catered to its residents. In the 1950s, several of Rondo's residents were displaced due to the installation of Interstate 94. [15] Well over 400 households were destroyed and among approximately 70% of residents were non-white, according to scholars Dana E. Vaux and David Wang.[16] Many of the businesses that were started in Rondo never re-opened after Interstate-94 split the neighborhood.[17] To understand the social changes brought by displacement, elders of Rondo were asked to describe the neighborhood to understand the consequences of the construction of interiority. One woman who longed for trust and stability in Rondo and was recorded saying:

[In the past] You couldn't go anywhere without somebody saying, "Hey, I know your parents." But now, you don't want to say anything because you might be show…This used to be a homeowner area but not its turning into a transient area because we have more renters in this area than homeowners. And we go the absentee landlords. The people that own the houses don't care; they aren't a part of the neighbourhood.[18]

To this resident's point, original Rondo residents trusted one another; however, once the Interstate-94 was installed, the neighborhood lost a sense of stability and trust due to the lack of community connection that Rondo once carried prior to the 1950s. Typical Rondo homes (Figure 6) did not have fences—a boundary for protection—but today, most homes have a fence surrounding the perimeter of the property (Figure 7). The point here is that interiority—as defined by this resident—refers to a set of values that include protection, community connection, and kinship ties. Yet interiority is also about what a resident senses across their neighborhood.

A second Rondo resident's narrative focuses on the high noise levels, safety, and lack of community connection:

We have a lot of noise, violence, the big cars running around with loud noise. We got kids who aren't controlled or controllable. They don't know how to treat people. Our elders are afraid to come out on their porches…our elders are like prisoners in their own home.[19]

Considering these two narratives, interiority is more about how people sense and grow nostalgic for their neighborhood. However, it is important to remember that their nostalgia is connected to the current atmosphere and sense of their neighborhood which was impacted by the Interstate-94 installation. Therefore, to reconcile this design opportunity, Rondo Commemorative Plaza was completed in 2018 and acknowledges the values, points of pride, and histories that were thematic in residents' narratives. In turn, their narratives added in producing interiority that is predicated on themes found in their narratives: *safety, community connection,* and *stability*. In addition, while the Rondo neighborhood looks vastly different that it did in the 1950s, the Rondo Commemorative Plaza—Figure 8 and Figure 9—was installed to recognize the histories and legacies that were rooted in the neighborhood. The Plaza—Figure 8 and Figure 9— includes physical barriers between the sidewalk and the Plaza; lighting; seating; and historical images of residents and businesses. These objects and systems attempt to provide a sense of place for residents.

Rondo Commemorative Plaza

Figure 4. Rondo at Arundel Streets, St. Paul, 1940[20]

Figure 5. Interior view of Co-op store in Rondo, St. Paul, 1948[21]

Figure 6. Homes in Rondo, St. Paul[22]

Figure 7. Homes in Rondo, St. Paul[23]

Figure 8 and 9. Rondo Commemorative Plaza, St. Paul[24]

EXPLORING BLACK QUEER INTERIORITIES

Following current efforts to expand current definitions of interiorities at the neighborhood-level and introduce narrative as a design research method to explore users' experiences, I will now discuss shifting/imploding/expanding interiorities that we could use to investigate, analyze, and theorize how users experience space under disappearing and marginalizing interiorities. I will focus primarily on the way that Black queer users' experience inhabitation under anti-queerness and national violence.

In 1959, Harold "Mackie" Harris" established the Starlite Lounge—Figure 10—as a LGBTQ-inclusive bar in Brooklyn's Crown Heights neighborhood.[25] Many Black queer Brooklynites visited the lounge to safely gather with other Black LGBTQ identified people. Despite a lack of queer public culture, according to the New York City LGBT Historic Sites Project, Starlite was known as the "oldest Black-owned non-discriminating bar in New York."[26] Fast forward to July 31, 2010, Starlite was forced to close due to the sale of the building that housed Starlite—a Black queer interiority that prioritized Black queer kinship.[27] Therefore, Starlite Lounge is an interiority that could be used to understand the impact of urbanization on Black queer interiorities.

In addition, Langston's Brooklyn was a well-known Black LGBTQ bar near Downtown Brooklyn that was owned by Calvin Clark. The bar opened in 2001 after the 9/11 attacks on the World Trade Center.[28] Langston's Brooklyn—Figure 11—was known for its thematic nights, parties, and public-facing resources in support of the Black queer community. For example, local organizations would host HIV-testing tabling events in which clubgoers could learn their status that same day and receive an honorarium. Unfortunately, this interiority imploded once Langston's was forced to close due to the expanding urbanization that increased the rent of the building; and thereby, Clark was forced to close in spring 2019.[29] As an interiority, Langston's Brooklyn valued care-work—labor to support the well-being of its clubgoers in a way that provided a need that the City rarely publicly provided. Yet how do we investigate these interiorities?

Like Black queer people, Black queer interiorities have almost always been under attack and surveilled by the State and quotidian people. Considering the material effects of urbanization on Black queer community building, preservation, and public representation, an appropriate intervention for investigating these interiorities is a design method I call Black queer spatiality. Black queer spatiality is a framework to index what people do and feel across an identified interiority. The method identifies and analyzes three pillars including, sensation, atmosphere, and object-nostalgia. Sensation is an inexplicable awareness of an interiority; atmosphere is the pervading tone or mood of an interiority; and nostalgia is a sentimental longing for the past.

Figure 10. Starlite Lounge, Brooklyn, New York[30]

CONCLUSION

Interiorities, I argue, refer to patterns of physical and mental site productions that represent Black queer public culture across spatialities. By patterns of physical and conceptual site productions, I mean the physical structures that enclose social interactions, memories, values, and desires. In this paper, I have demonstrated patterns of physical site productions, including Langston's Brooklyn and Starlite Lounge. Both sites were shuttered due to negative consequences of urbanization—displacement and rising rental costs. By patterns of conceptual site productions, I mean those immaterial, but colloquial interiorities that are marked by performance or social activity. Consider New York City Pride as a conceptual interiority. New York City Pride as an interiority is not a physical site, but its boundaries are marked by what people do, sense, and value across the interiority. In this paper, I demonstrated the production and implosion of Saint Paul's Rondo neighborhood as an interiority. Whether it is a neighborhood, a physical site, a Pride event, or otherwise, interiorities shift due to patterns of urbanization; and consequently, economic deprivation, land-use policies, and city ordinances.

Black queer interiorities are always un/becoming. They are almost always in proximity to destruction. Therefore, an appropriate and alternative design research method is Black queer spatiality which involves a focus on an interiorities sensations, atmosphere, and nostalgia to understand the history, influence, and values that signify its function, form, and possibilities before it succumbs to its implosion.

NOTES

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[4] Mina, 33–35.

[5] Mina, 33–35.

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STREET VENDING IN THE LIVEABLE CITY: AN AUTOETHNOGRAPHIC EXPLORATION

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INTRODUCTION: JAKARTA'S STREET VENDING

As the capital of the largest economy in Southeast Asia,[1] Jakarta has an astonishingly high unemployment rate.[2] Many causes give rise to this phenomenon, with low education rates at the forefront.[3] Thus, working in formal sectors, which usually require more than a high school diploma, can be challenging for many. On the other hand, Jakarta is also well known as the hotspot for urban informal sectors (UIS).[4] As one of the most popular city's UIS, street vending has provided alternative employment to those considered unfit to work in formal settings. For years, street vending has proven to be an imperative safety net for the underprivileged citizen in place of the non-existent adequate social services.[5]

However, despite its socioeconomic significance, central and provincial governments still do not recognise street vending as part of the official labour force.[6] Instead, the governments seemingly prefer to adopt the binary view of formal-informal that sees street vending as a culturally backward and faulty development that is not befitting their idea of a modern city—the idea that is mainly rooted in the Eurocentric belief of rational order in aesthetical and geometrical senses.[7] It has been quite evident for the past decades that Jakarta's urban development priority is to catch up with the physical growth and technological advancement of those in developed countries—an ambition that puts Indonesia on the top ten list of the country with the most skyscrapers in the world while at the same time being one of the worst cities with traffic congestion in South East Asia.[8]

Besides guiding the direction of Jakarta's urban development, this binary view also produces several regulations that forbid street use other than for transportation purposes. Among these regulations is the 2007 Jakarta bylaw No. 8, which states that it is illegal to sell goods in the streets, to become a street vendor, and to buy something from a street vendor, except in areas designated by the governor.[9] And to enforce this rule, the provincial government, through Jakarta Municipal Police, conducts random raids, evictions and confiscations to scare the vendors away. In addition, it also organises *relocation*, a strategy that aims to displace the vendors from the street and 'educate' them on how to be 'proper' businessmen.[10]

In response to the government's strict measures, street vendors are resistant to protecting their ways. It is evident that they are pretty successful in avoiding the authorities, judging from the rapid growth of the street vendors population throughout the years—in 2012, it was estimated that there were around 300.000 street vendors in the city, while in 2019, the number doubled to 600.000.[11] The provincial government's failure to regulate street vendors should be seen as a sign of the need to change attitudes

towards this activity. It is time to start to perceive street vending not as a disruptive element but as an enduring and significant urban fixture that is inherently and unapologetically Jakarta.

SOCIO-SPATIAL SIGNIFICANCE OF STREET VENDING

To be able to switch the perspective towards street vending, we cannot only perceive the activity one-dimensionally as an informal and short-term economic problem-solving mechanism. While its socioeconomic roles are unquestionable, what is often overlooked is the fact that street vending is also a particular spatial practice, a part of what Chase, Crawford, and Kaliski called *everyday urbanism*.[12] This type of urbanism includes the multitude of practices that influence how the city works, no matter how small and unassuming they are. It situates street vending as a practice that shapes the urban environment's socio-spatial interactions by transgressing spatial and legal limits.

And based on how it transgresses the existing to provide socio-spatial interaction, I argue that street vending is not only a form of everyday urbanism but also a part of *interior urbanism*. While the concept has many iterations,[13] I found two general characteristics generally accepted to define interior urbanism. One, it encompasses practices that allow temporary inhabitation in an existing urban context and two, it is the practice that relies more on tactics rather than strategies.[14] Thus, interior urbanism can be seen as a micro-scale intervention that allows temporary inhabitation by interrupting the existing in a meaningful and non-confrontational manner.

Figure 13. Street vending transforms the pavement from a space for movement to a 'makeshift' dining space.

As interior urbanism, street vending not only provides an indoor-like experience in the open but also domesticates the street by inviting people to inhabit the usually unsympathetic and sterile environment. It adds a *human dimension*, which according to Jan Gehl, an essential ingredient for a lively city.[15] Therefore, situating street vending as part of interior urbanism emphasises that the activity is integral in generating liveability aspects in Jakarta's streets, in particular, providing refuge for the poor and the underprivileged who cannot afford to go to the malls, which become Jakarta's default pseudo-public in recent decades.[16] Through its spatial practices, not only does street vending soften the city, but it also exists as a mechanism to cope with social disparities. Thus, I believe an in-depth inquiry into street vending's interior urbanism is necessary to produce a further understanding

of its socio-spatial roles and impacts on Jakarta's urban life. This knowledge is crucial to developing more socially equitable urban strategies to create future inclusive Jakarta public spaces.

INTERIOR WRITING: AN AUTOETHNOGRAPHIC EXPLORATION

To study street vending's interior urbanism, I used the data gathered through fieldwork conducted in Jakarta's three most popular street vending hotspots from August to September 2022. For the fieldwork, *walking* was chosen as the primary approach as a way of knowing through direct engagement and action. It is a method that theoretically has been explored in various views and discourse and has existed with multiple variations and names; for example, *flaneur* and drift or derive.[17] My version combined flaneur, where I, as a researcher, make an incognito observation at the beginning of the experiment,[18] followed by assuming the role of a walker or wayfarer, where I would do what Barbara Tedlock called as *observant participation*—to engage personally with the situations.[19] This combination allowed me to understand the phenomenon's big picture while simultaneously capturing the insider lifeworld--the interior situations of street vending activities— more intimately.

A considerable amount of materials were gathered during walking, which was diverse in form and perspective. Thus, I needed an analytic tool that would not only help me organised and link all the materials to generate coherent and comprehensive narratives, but I would also need this tool to draw connections between these narratives with the larger socio-political realities to be able to produce a knowledge that would be useful for Jakarta's future urban planning. The method in question is *interior writing*, a version of autoethnography that require the writer to analyse a phenomenon through personal experience. This is a common practice in writing about the interior. Penny Sparke and Anne Massey stated that personal assessment of social phenomenon is instrumental in addressing the subtleties of the entanglement between the interior, the inhabitants and the environment, which often escape the other forms of analysis.[20]

While the approach is obviously not new,[21] I saw no fixed recipe for interior writing. Thus, I established my version by experimenting with the many versions of available recipes to see how they might fit to analyse the fieldwork materials, in which I came up with three essential components to use the approach. First, the writer needs to access and express their *interiority*, the private and innermost thoughts—something Sparke and Massey also agreed upon in their view of interior writing. Hence, rather than presenting careful and rationally crafted arguments, the writer needs to include their feeling and sentiment in addressing each situation. For example, as shown in Figure 2, I conveyed my dislike of a particular environment, which led to a deeper assessment of what was considered an 'ideal' urban environment. This also shows how accessing interiority allowed me to examine an urban situation by being in touch with things that are often intangible but significantly affect the spatial experience of one individual, for example, atmosphere, comfort and emotions.

The second aspect is *domesticity*, which many, including Jane Simon, have used as the key to understanding the entanglement between interior matters, spaces and selves in writing about the interior.[22] For Simon, domesticity in writing is conveyed through the detailed description of background events, traces and textures of the interior situation—retelling the insignificant features that might spark the sense of familiarity, belonging and comfort. In my process, I found that writing in detail revealed the role of each component within the production and operation of street vending activities (Figure 2). It exposes the significant attributes of objects, people and settings that shape street vending's interior urbanism.

So I stood there in front of the MRT station entrance with a new determination to really walk on the streets of Sudirman—to become what Ingold called as a wayfarer that pays attention, engages and acquires knowledge from the environment. As I began my walk, I realised that Sudirman had undergone considerable changes. There were no more patchy and narrow pavements; they were replaced by wide and extensive pavements complete with both Bahasa Indonesia and English signages. In addition, there were footbridges, tactile pavings, public benches, modern bus stops and a good amount of greenery. Overall, they were the textbook of modern urban pavements. However, as I walked from my starting point to the direction of Hotel Indonesia Roundabout or locally called Bundaran HI, I could not help getting the feeling of walking in a very mechanical or sterile environment. Because they were so perfect, they started to feel like made-up streets, like they were not real. This feeling might be supported by the fact that only a few people use the pavements. Initially, I thought this was because of my bad timing, but after six days of exploring the area, I realised that the primary residents of the area—the white-collar workers—hardly ever walked on the pavements. Instead, they use them briefly as a short transitory space from cars, motorcycles or MRT stations to office buildings. I suspected it was because of the heat. The temperature in Jakarta is around 32ºC all year long. This could be unbearable without air conditioning with the 'professional' looks these people have to wear for work. People who used the pavements mainly were security guards, delivery guys, foreign tourists that can be easily identified by their shorts (Indonesians rarely wear shorts outside, except for playing sports or on beaches—we usually wear clothes that cover our legs for modesty) and street vendors—none of them has to look professional. It was a bit strange that the government spent so much money and effort on things not used by the people occupying the area. But it started making sense when I found out about the reason for the area revitalisation. These new facilities were installed to prepare the city for hosting the 2018 Asian Games. The international stadium was in the area, so no wonder the rest of Sudirman was getting an upgrade that could impress foreign athletes and dignitaries.

interiority
domesticity
reflexivity

Figure 14. Example of interior writing showing the use of interiority, domesticity and reflexivity.

The last aspect of interior writing is *reflexivity*. This component would move interior writing beyond the personal retelling of interior situations and retain its qualitative social science basis.[23] According to Roni Berger, reflexivity requires the writer to have a continual internal dialogue and critical self-evaluation of their positionality and how this position would affect their views and understanding of the phenomenon.[24] To do that, the writer must keep their narratives in continuity within social, cultural and historical realities. While reflexivity can involve long, conflicting and complicated dialogue, sometimes, it can be as simple as making a critical assessment by relating personal thoughts with reputable sources (Figure 2). Thus, with reflexivity, not only would the writer produce a personal insight that has social significance, but the writing would also not just parrot biases and prejudices about the phenomenon.

Together, these three aspects produce in-depth narratives of interior situations in the form of writing. However, rather than following the formal academic structure in presenting these narratives, I utilised *process-based writing*—an approach initially proposed by Ann Cvetkovich to let the writer openly speculate, imagine, and wonder through its no-restriction style, which encourages and acknowledges fragmented and unfinished writings as part of the analysis process.[25] Using process-based writing, I produced more than 90.000 words coverings my intimate yet critical assessments of 31 unique street vending cases on three of Jakarta's streets.

Furthermore, besides just using text, *drawing* is also used in this research as part of the process-based writing process. In ethnography, it is pretty customary to use drawing as a creative form that reveals and directs different attention, especially to things that are more effective and sensorial, things that might be complicated or too subtle and delicate to express through written words.[26] In exploring street vending's interior urbanism, where the operation almost always involves mobilities and temporalities, saying things with just words is very challenging. Thus, in addition to my 'standard' interior writings, I made a storyboard-inspired drawing for each street vending case, where every column represents a significant *moment* within a street vending *event* arranged sequentially in time. Inspired by Sergei Eisenstein and Bernard Tschumi,[27] I combined several drawing techniques for each column, such as perspectives, plans, and notations, to explicitly capture the movement and transformation of bodies, objects and spaces on the streets (Figure 3).
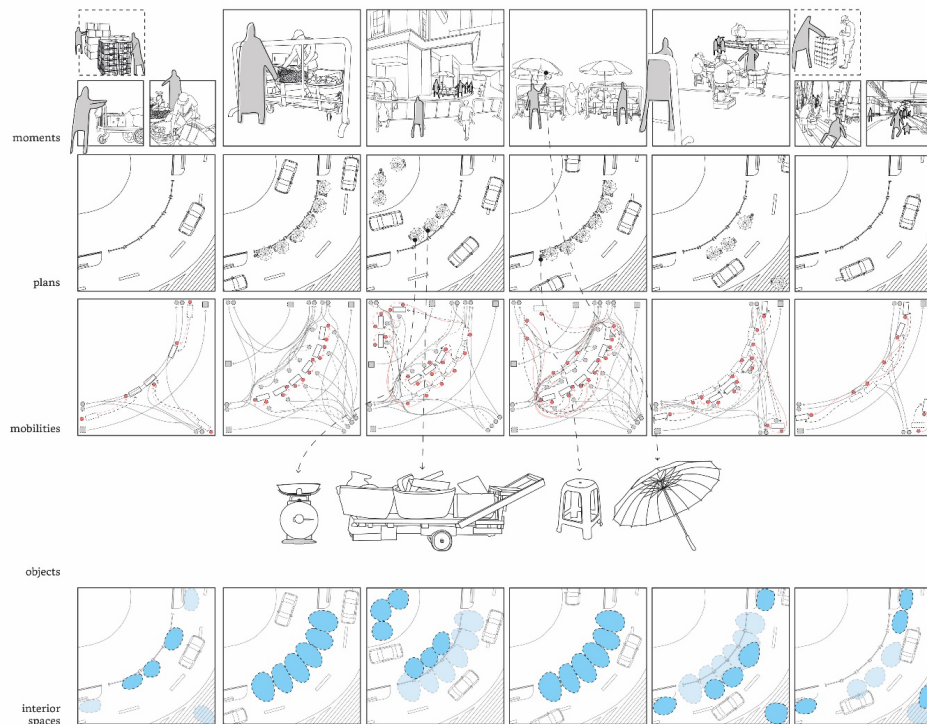
Figure 15. The use of storyboard-inspired drawing to capture spatial subtleties such as movement and transformation of bodies and objects in spaces.

The last stage in interior writing is *reflective thematic analysis*. It is an analytic tool initially developed by Virginia Braun and Victoria Clarke to generate themes from textual information that can be read as patterns essential to understand a particular phenomenon.[28] The first step of the analysis is coding, where specific words, phrases, or features from the writings and drawings are highlighted and labelled with codes. Then, the codes were grouped into themes based on their shared attributes or meanings. In thematic analysis, rather than processing all the codes like other coding approaches in social science, such as grounded theory,[29] we can focus on processing the codes that might answer the research questions, which in this case is the matter of Jakarta's street vending's interior urbanism. Thus, through several iterations, this process generated 15 themes and 35 sub-themes that define the understanding of street vending's interior urbanism spatial practices (Figure 4).
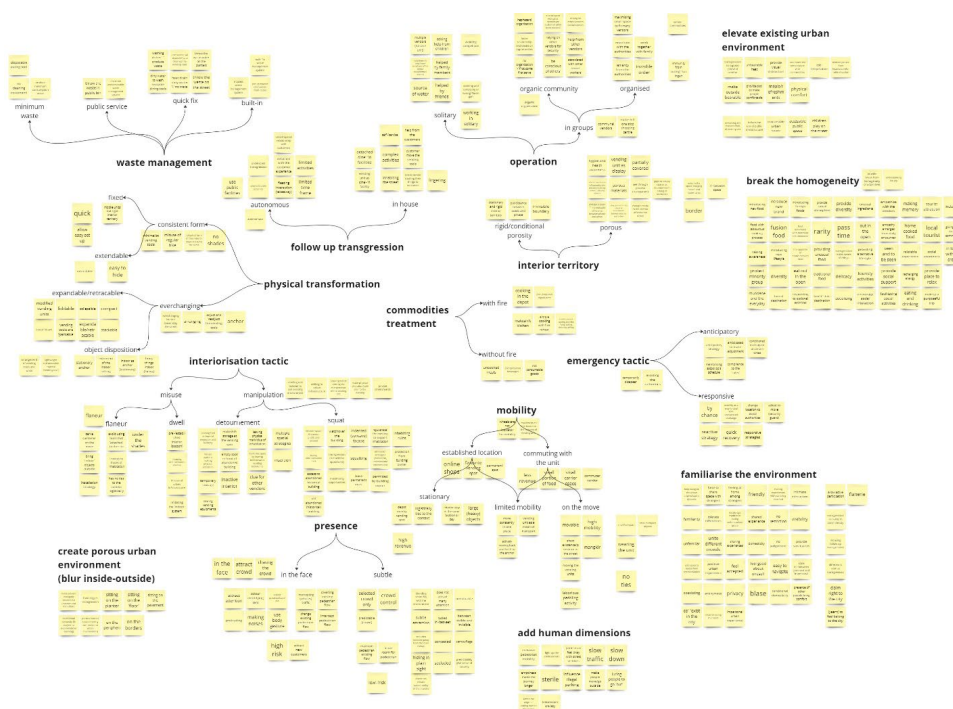
Figure 16. The initial result of the thematic analysis shows 15 themes and 35 sub-themes.

TYPOLOGY OF PRACTICES

While thematic analysis allowed me to define the essential characteristics of street vending's spatial practices in Jakarta through themes and sub-themes, they had not generated an understanding of the operation formed by the relationship between specific characteristics to produce a particular interior urbanism situation. Thus, I decided to organise these themes into several types reflecting the different variations of street vending spatial practices on Jakarta's streets. *Typology* was used since it allowed me to classify the themes multidimensionally, which means not only could I group together different themes that belong to different dimensions, but I also could assign one theme repeatedly to multiple types.[30]

However, unlike the notion of typology often found in architecture or interior discourse, which focuses more on building archetypes, functional aspects, and styles,[31] my typology focuses on the tactics—the actions taken and the ways to operate. It produced something similar to Jeffrey Hou's notion of *typology of actions and practices*: the classification of spatial responses to the mixture of opportunities and constraints of the existing urban setting.[32] Thus, while the physical shape of street vending interior urbanism might be similar, they might be classified differently since this typology focuses on the distinction of the tactics used that would produce different spatial qualities, which influence how the interior and the city are experienced.

As a result of this process, six different types of street vending practices were generated (Figure 5). The first type is called *berkeliling* or nomadic. This is the most practical practice since it requires the vendors to use minimal vending tools to be constantly on the move. The vendors usually have a flexible vending schedule and no fixed location—always chasing over the crowd. Because of the high mobility and fleeting presence, it has low risks but can only cater to simple vending and social activities. Although, this limitation influences follow-up transgression, encouraging customers to appropriate public infrastructure around them to support their activities. The second type, *lepasan* (removable), is similar, especially in mobility and minimalist vending tools. The main difference is that while berkeliling adopts a more in-the-face approach to attract customers, the second type is more

subtle by operating in less crowded areas and only chasing selected crowds. This low-key attitude allows lepasan to be at a much lower risk and thus can pause in one location much longer. This enables the vendors to house dine-in activities and has regulars, although they usually have less revenue than the first type.

The next type is *jalan di tempat* (marching in place). The vendors who use it tend to stick in one area and attract crowds rather than chase after them, usually by situating their vending units to intercept the existing pedestrian flow. They typically use lightweight objects that can be easily moved and hidden away from the authorities occasionally. To do this, they usually form a logistical tie to the context, so they can have indoor hiding places which restrict their movement only within specific areas. The fourth type, on the other hand, is much more permanent than *jalan di tempat*. It is called *bersarang* or nesting, allowing vendors to have specific vending spots on the street. Usually, after finishing their activity for the day, the vendors typically leave some of their vending tools as a token of reservation for prospective customers or competitors. Quite the opposite of the third type, while having similar access to more stable vending spots, this practice is usually quite subtle and opts to use a location far from the crowd. Thus similar to type 2, it also can facilitate in-house social and dine-in activities.
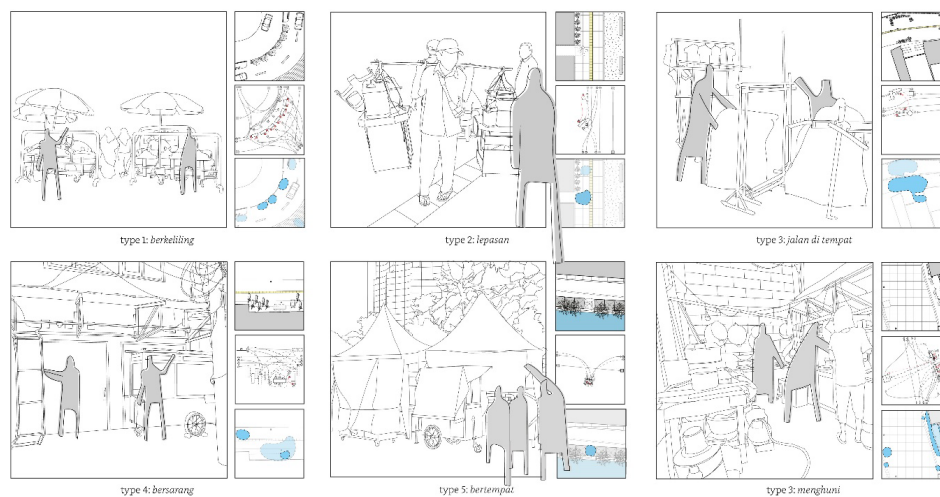

Figure 17. Jakarta's street vending typology of practice.

The last two types are both stationary in nature. The fifth type, *bertempat* or reside, situates the vendors in inhabiting semi-permanent structures, such as tents, provided for them by either local grassroots organisations or, in rare cases, the government. This gives the vendors little control over interacting with the existing urban settings. They can only modify the space inside of the cocoon-like area that has been pre-arranged for them. On the other hand, while the sixth type also falls into a stationary category, its spatial practice is far from passive. The vendors who use this practice physically alter the existing space to support their street vending activities and living arrangements. It usually involves appropriating old abandoned façade or grey areas between private and public pavement. Because the vendors stay in that spot all the time, they can facilitate the most complex social activities but, on the other hand, has no flexibility, making the vendors usually try to keep a low profile to avoid the authorities.

Aside from these types of interior urbanism practices, the typology also reveals the socio-spatial impacts of these practices on Jakarta's streets. Among many things, it generally elevates the existing urban environment by facilitating means that would make the outside bearable, such as providing visual distractions and shades that would psychologically and physically calm the temperature of the streets. It also adds human dimensions where the presence of street vendors lures more people to go

outside and thus liven up the environment. Furthermore, some street vending types that provide dine-in facilities help to break the homogeneity. It provides an environment where people can relax and enjoy the 'dynamic' atmosphere of the street amid their busy and tense daily life. It also promotes diversity, introducing people to new lifestyles and forcing different crowds to interact. But most importantly, all types of street vending practices produce interior urbanism spaces that familiarise the city while allowing people to be blasé and keep up their anonymity. It makes people feel at home among strangers and enable them to claim their right to the city through transgression and inclusive economic participation.

This exploration shows that interior writing can be used to explore urban elements such as street vending activity beyond its physical convention. It gives an intimate reading of urban issues and provides opportunities to reflect on their correlation to the much larger social and political realities. The result of this experiment, the typology of interior urbanism practice and the socio-spatial impacts provide an understanding of the significance of street vending activity in Jakarta. The different types of interior urbanism tactics might provide insight into how to assimilate street vending activity into Jakarta's future urban framework, which needed to be more socially equitable and inclusive.

NOTES

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LIVABILITY ENHANCED THROUGH DESIGN: THE CONTRIBUTION OF JANE DREW TO THE URBAN PLANNING OF CHANDIGARH

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INTRODUCTION

Answering the question 'What makes a city livable?' requires the entanglement of a considerable number of factors, variable accordingly to each Livable Index. The design of cities and their built environment greatly influence the well-being of their inhabitants, broadly determining how the urban space is lived. This paper aims to highlight the key role played by architecture and urban design, and their practitioners, when assessing the livability of cities.

The Indian city of Chandigarh is taken as an example since it has been consistently credited for India's highest living standards. As a planned city, Chandigarh illustrates how urban design can improve the quality of life of its inhabitants as well as the essential role played by architects. The impact of Le Corbusier in the planning of 'the city beautiful' has been vastly studied, often creating the myth of his sole authorship of the city. Instead, this paper will focus on the work of the architect Jane Drew and her overlooked though crucial contribution to the (arguable) success of Chandigarh's planning.

Based on primary research of archival material, namely the Fry&Drew Papers in RIBA Drawings & Archives Collections, and Pierre Jeanneret Fonds in Canadian Centre for Architecture, and also on my recent field trip to India, I aim to highpoint the entanglement of Drew's architectural approach with the topic of livability. I will explore her vision of design as a tool to enhance the spatial quality and the well-being of the users, to conclude that livability can be enhanced through design.

CHANDIGARH CONTEXT

It is vast and detailed the literature that focuses on the inception of the modernist city of Chandigarh.[1] In 1947 India's independence from the British Empire resulted in its Partition into two nations. Severe socio-political turmoil and widespread violence accompanied an unprecedented migration of refugees. The new political borders especially affected the state of Punjab, whose capital, Lahore, fell on Pakistan's territory. Prime Minister Nehru envisioned a new capital, "symbolic of the freedom of India, unfettered by the traditions of the past – an expression of the nation's faith in the future".[2] Besides, the project should respond to the post-colonial housing deficit with a strictly controlled budget.

An overseas design team was selected to design Chandigarh. The British architects, Jane Drew (1911-1998) and Maxwell Fry were chosen by their extensive 'tropical' experience. Before the mid-century, they worked as West Africa Town Planners for the British Empire, the initial step in a long-lasting

relationship with the climate so-called 'tropical' that made them pioneering figures in the field of so-called Tropical Architecture. Leaving their successful London practice, they moved to India in 1951, appointed as Senior Architects of the Chandigarh Project. The team was further composed of Le Corbusier and Pierre Jeanneret, assisted by Indian architects (Fig.1).
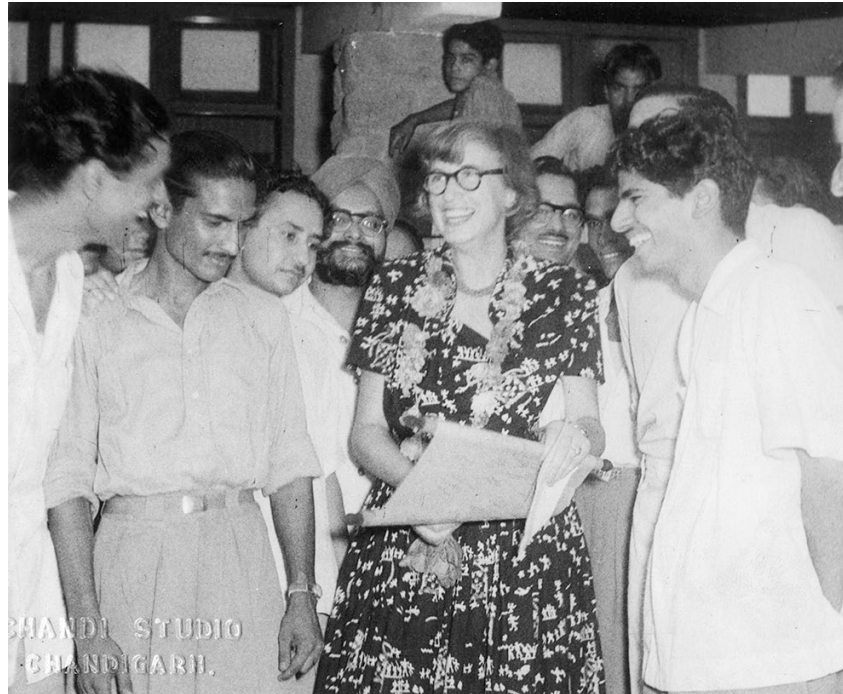

Figure 1. Jane Drew in Chandigarh (RIBA Collections).

THE MASTERPLAN

Le Corbusier designed the masterplan of Chandigarh accordingly to the principles of C.I.A.M.[3] The city was divided into four functions: living, working, recreation, and circulation.[4] Fry described the anatomic analogy of the plan, with "l'estomac in the center, l'intelligence with the university 'naturellement à gauge', and a great double sector for the capital buildings, l'administration, a la tête, with the low hills for backdrop" and the 'Leisure Valley', a strip of landscaped greenery traversing the city, as the lungs. [5]

Finally, Le Corbusier coined the circulatory system, the veins, as "Les Sept Voies" or "the seven Vs" (*voie*/road). This network follows a functional hierarchy, starting with the inter-city roads V1 and V2. Nonetheless, is the set of V3 that forms the base of the grid. It generated portrait-oriented rectangles, 800m per 1200m, numbered in sequential order, called sectors. The Corbusian masterplan left their layout unfilled (Fig.2).

The first neighbourhood unit to be designed was Sector 22. It functioned as a trial prototype of the overall principles of the plan, which would be henceforward replicated city-wide. The design of Sector 22 is credited to Jane Drew, which gives her a crucial role in the sectorial design.
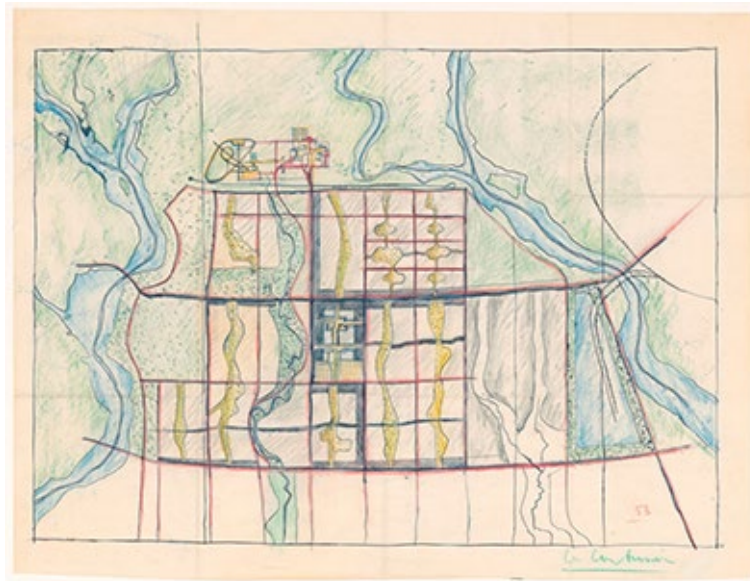
Figure 2. Chandigarh Masterplan (CCA Collections).

VOIS

Since each sector is limited by fast-moving traffic roads (V3s), its layout was planned without housing frontage development. Instead, walls surround the sector, restricting interior access to four midway vehicular entrances. Drew aimed "to protect the Sector from the traffic roads to make sure that children are protected from the fast traffic."[6] Likewise, the design fosters a sense of community.

The sector is transversely bisected by a V4, a serpentine road for daily use, called bazaar street. V4s are filled with shops, markets, cinemas, and offices, unilaterally positioned to eliminate unnecessary crossings. The V4 is connected to a slow-moving loop road (V5), appointing V6s as the access roads to housing. Lastly, V7s are footpaths. However, "the Rule of the 7 V's ... which are 8", was extended to include cycle tracks to improve the city's walkability and sustainability.[7] Indeed, environmentally friendly mobility improves air quality and time efficiency, enabling a smooth routine for the residents, essential points in any livability index.

While in the short axis the V4 strips the sector widthwise, a green belt, variable in width, crosses it lengthwise. Like so, the two elements of daily life intersect, in opposite directions, and "what is there new in this? It is the continuity of certain elements in the Plan (…) The greens join and continue. So do the market streets", connecting adjacent sectors.[8]

The livability of Chandigarh is enhanced by clarifying the functions of movement and segregating the traffic, which increases security. Besides, it gives the city what Fry described as "a form of mental order".[9] The intelligible hierarchy of roads in the orthogonal grid facilitates movement and navigation.

"A SECTOR IS A SMALL WORLD"[10]

Jane Drew envisioned a sector as "the home for the day to day life: a place where normal life can go on from the home".[11] Also, the "daily house" where "home life can reach a high level" pleasantly and safely.[12] Worth to mention, in Chandigarh Drew materialized a discourse that she envisioned since 1945: "in close proximity with housing, and never out of easy walking distance, the open space, in the form of allotment or vegetable garden (…), park, sports ground, and so on. And as often as possible housing should give on to this open space".[13]

Drew applied modernist ideologies when designing the sectorial layout as an internally planned and nearly self-sufficient cell: "We had followed the general tenets of C.I.A.M. for sector planning putting all amenities needed for quotidian life within reach of the homes. Nursery schools, health centers, shops, swimming pools, and of course, the central green".[14] Therefore, leisure, education, sports, and health equipment were placed in the green belt, providing a vicinity of all the looked-for functions and daily activities within a short distance from any dwelling. The right given to the pedestrian, materialized in the city's walkability level, enhances livability (Fig.3).

Figure 3. The green belt (Author).

By making this varied typology available to all the residents, regardless of their socio-economic status, Drew also expressed the social considerations omnipresent in her architecture. Additionally, she considered the working mothers: "all housing had Health Centres and Nursery Schools within reach within a short walk so that mothers could work".[15]

In Sector 22 there is a market, two schools, a cinema, and a health center, the last one designed by Jane Drew. For other sectors, Drew designed two secondary schools, a hospital, and a swimming pool. This public equipment is always complemented by infrastructure, services, transport and communications networks provided throughout the broader sector.

The design of the buildings is also a key aspect in enhancing Chandigarh's livability. As aforementioned, Drew was a key figure regarding Tropical Modernism. Without using air conditioning, Drew's buildings aimed for a climatic response with scarce resources. Chandigarh's "six climates" were particularly challenging.[16] A suitable architectural solution of maximum sunlight for the freezing winter and frank cross ventilation and shade for the torrid summer required a studied orientation. Conversely, to cool the central area of the construction, thick walls protected the vulnerable sides, along with ventilated roofs. Furthermore, openings were reduced to a minimum, and protected with sun breakers, *chuggias,* or *jallis*. Covered walkways, verandahs, and patios, were also used to passive control the climate. Drew's techniques and designs are broadly valid today, highlighting their sustainability.

PEONS' VILLAGES
The Chandigarh Project guaranteed housing for all grades of government staff in a hierarchized rank of 13 housing typologies established according to the future occupants' salary. Type 1 allocated

judges and commissioners and Type 13 peons or messengers. Drew's social concerns returned in her initiative to later design Type 14, to accommodate the sweepers. By promoting fairness in housing distribution Drew significantly contributed to the livability of the city.[17]

To better illustrate how the architect's social commitment can improve the inhabitants' quality of life, I will focus on Sector 22, where Drew designed two housing clusters. Referred to as Peons' Villages, they are "small groups of houses grouped to form little societies within the sector".[18] The analysis that follows is a result of observations and interviews during my recent fieldwork in the community of Sector 22D. I aim to explore how the design of the cluster materializes Drew's contribution to the city's livability achieved through design (Fig.4).

Despite the denomination, Fry explained that "these groups of ours were not villages in any proper sense of the word though the people that lived there were villagers by old habit".[19] Drew assembled the houses in "village form" to recreate a feeling of rurality and the spirit of the community present in their settlements of origin. The size, around 200 units, to accommodate 700 people, resembled the average size of a Punjabi village, giving a human scale to the dwelling space.[20] Besides, the narrow internal streets (initially paths) were also intimately scaled with a pedestrian width. Even though they can accommodate a car, the initial residents couldn't afford one. Nowadays, the roads are mainly for bicycles, pedestrians, children playing, and vendors.
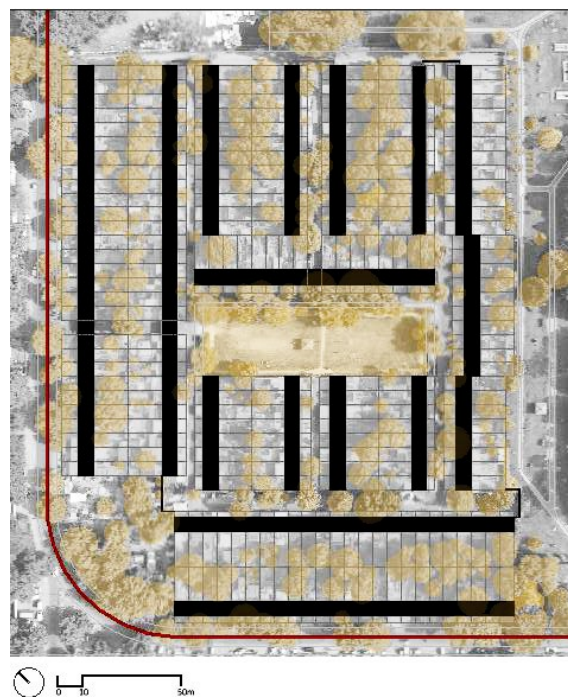
Figure 4. Peon's Village, Sector 22D (Author).

TYPE 13D

The building scale also recalls the one in village layouts. The low-rise, low-density, in cubic forms of local brick, gained an architectural identity so-called 'the Chandigarh Style'. This aesthetic framework was not intentionally pursued, but rather constructed while adapting the design to the circumstances: "The early houses are in some ways unsatisfactory because of the traditionally based plans, and the restless roof lines, owing to their division into sleeping terraces by party walls. In the later houses, these problems have been solved and the result is more serene and unified".[21]

The peons were the lowest-income governmental employees with considerably large families. Drew ambitioned two rooms layout, "so that parents and children could be separated for sleeping".[22] Besides the two rooms, Type 13D is a single-storied unit with a cooking veranda, a bath compartment, and a water closet, another challenging goal that was accomplished. (Fig. 5) Cost-cutting was achieved by placing the houses back-to-back or excluding the roof of the toilets. The typology significantly raised the minimum standards of low-cost Indian dwellings and empowered a new chapter on livability in India. Noteworthy, Chandigarh was the first Indian city with sewage, drinking water, and electricity in every legal house. Part of it should be credited to Jane Drew's efforts in housing the lowest classes, whose living conditions were greatly improved. Drew playfully shared the compliment by Prime Minister Nehru: "the only cheap housing he had seen that did not look cheap".[23]
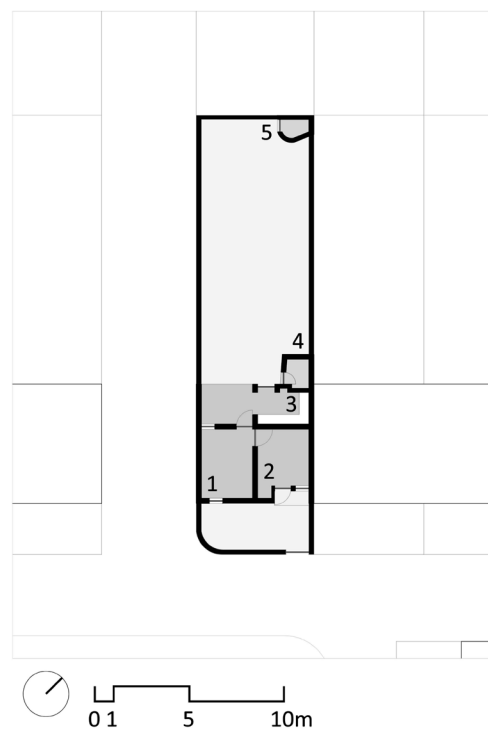
Figure 5. Type 13D, Peon's Village, Sector 22D (Author).
1.Room 2. Living room 3. Kitchen 4. Bath 5. Water Closet

Drew believed that "poor people who can afford only a small home need more open space".[24] Profiting from an irrelevant land price, Drew compensated the size of the house with a generous backyard, and "this poverty was turned into an asset".[25] Nowadays the rear courtyards facilitate the Indian outside living habits, accommodating assorted usages: from small gardens and children's play areas to unshaded areas to dry seeds; not to mention the omnipresent unauthorized annexes to lodge the extended families (Fig.6).

Figure 6. The backyards, Peon's Village, Sector 22D (Author).

The cooking habits were also considered in housing design. Noteworthy, in 1943 Drew worked with the British Commercial Gas Association, developing thorough studies on kitchen design, so women could be more efficient during daily tasks.[26] In India, modern kitchens were considered, yet "it having been impressed on us that the normal Indian woman liked to cook squatting".[27] Additionally, "we found that modern kitchens were welcomed, but that chapatis (a traditional food used every day) could not be made on an electric cooker, so we had to improve the traditional wood-fired chula"[28] Like so, the initial houses followed traditional kitchen patterns.

COMMUNITY SPACE

The community is organized around a large central green space, that encompasses a shaded sitting area and a children's playground, fostering informal interactions among residents. Additionally, by prolonging the terraced roof of two housing blocks, Drew created a sheltered space underneath and a leisure spot for informal gatherings (Fig.7).

Figure 7. The green central area, Peon's Village, Sector 22D (Author).

The front yards of the houses also promote bonds between neighbors. Since their landscaping and usage reflect the owners' choices and budgets, the outcome is an uneven street façade, in which flexible spatial practices offer liveliness to the space.

The spontaneous and inventive ways in which the common space is lived, encouraging dynamic sociability among residents, and strengthening the sense of community, illustrate the livability of Drew's design. It welcomes the genuine expression of those being designed for, crafting networks of belonging between people and space. The livability of the city is truly grasped in the richness and diversity of the layout design of the sector, which mirrors Drew's human approach to planning and contrasts with the formality of the city grid.

Moreover, unity is also achieved by walling the village. The brick walls are only punctuated by arched entrances, supporting security aspects. The newspaper *Times of India* highlighted that "the cheapest housing at Chandigarh has been turned into human groups of dwellings, approached under archways, grouped round safe open spaces, the privacy and safety of compounds safeguarded by high walls, and the roads shaded by trees".[29] (Fig.8)

Figure 8. The green central area, Peon's Village, Sector 22D (Author).

Tree planting was another way that Drew invested in community livability. The roads and the backyards are shaded by trees, which lower the temperature and identify the public space. Drew commented on the trifold effect of tree planting: "one of the very first tasks we did was to get a tree nursery planted and the various sectors were quickly identified by their trees. Trees not only provided shade but also identification and lowered the temperature".[30] Also "the main roads are planted, in general, with one kind of tree each; thus visually linking sector to sector: this tree planting being part of the road design".[31]

PARTICIPATORY METHODOLOGIES

The awareness of local specificities was a way that Drew sought to attend to future owners' needs and aspirations towards better livability. The respect for local culture and traditions, namely religious and caste intricacies, domestic routines, and cooking habits, was achieved not only by in situ observation but particularly by direct consultation with future users, promoted as a work methodology.

We had many meetings with our future clients, who told us all about the intricacies of Hindoo religious observance in the domestic routine, the separation of sexes, castes and occupations, of customs of sleeping and relaxation brought about by the climate.[32]

For instance, Drew recalled "conferring with a young doctor (…) and designing with him" Sector 22 Health Centre.[33] Moreover, referring to the shopkeepers, Fry pointed out that "we designed with them (…) and so successful was the outcome."[34] Furthermore, Drew concluded: "I see that we have always practiced community architecture (…) we have consulted all those who were to use the buildings".[35] Ultimately, she believed that "respect for another man's way of life makes working with him easier".[36] These extensive meetings were complemented by the construction of mock-ups or real-scale models, where they "had long evening post mortem parties on the roof."[37] Regarding the lowest categories of housing, "before large numbers were built, we built prototypes of each different house type which were then lived in, criticized, and improved. In this way we found that the Indians (…) were willing to try out new ways of living."[38] They similarly built "a full scale kitchen to show people below grade 9 how it worked".[39] This strategy decisively contributed to Drew's modernist plans and designs' high livability, especially their lively preservation seven decades after.

CONCLUSION

Like any city, the Chandigarh Project has diverse fragilities.[40] One of them is the segregation that the sectorial plan comprises when differentiating government employees by income, inceptive in the concept of rank, and indirectly by caste. Drew was aware of this new chain of prejudice: "We discussed the question of distributing population generally over the plan and mixing rich and poor together."[41] Still,

we grouped similar grades (…) near each other (…) we placed some of the lowest category near high ones since people should be near their place of work, but we did not otherwise mix the grades much since India (…) is class-conscious and people would be unhappy near very different grades. We have been criticized for this but (…) we still think it was right.[42]

Above that, the highest livability standards associated with the city demonstrate "how important town design was to people's lives."[43] The Corbusian masterplan of 'the city beautiful' counts on a significant contribution of Jane Drew, credited for the design of the inceptive Sector 22, which was subsequently citywide applied.

The road system segregating the traffic speed, the orthogonal grid, the continuity of certain elements throughout the sectors, and the repetition of standard layouts permit easy navigation and space intelligibility, promoting well-being, and a smooth daily life for the residents. Furthermore, the

sustainability of the city was prioritized by the architects' expertise in passively adapting modern architecture to the local climate - the so-called Tropical Architecture.

Parallelly, Drew included in her work innovative participatory planning methodologies. The design process was driven by rich exchanges between architect, inhabitants, and environments. This strategy decisively contributed to the high livability of her modernist plans and designs, besides their preservation until today.

Considering Sector 22 or Peons' Villages, affordable housing neighborhoods designed for the lowest-income groups, Drew adopted a holistic approach. She combined housing, infrastructure, leisure, and greenery with collective equipment, public services, transport, and communications networks, intertwining territorial, political, social, economic, and environmental aspects.

Seven decades after, highlighting the planning of Chandigarh through the lens of the overlooked legacy of Jane Drew illustrates the great potential of her pioneering socially engaged architecture in pursuing a more egalitarian society, and how livability can be enhanced through design.

ACKNOWLEDGMENT

NOTES

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IS THE SMART CIRCULAR CITY EMERGING?– MAPPING POLICIES AND INITIATIVES IN 12 CITIES

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INTRODUCTION

In response to the world's population increase in the next 30 years,[1] many countries have been planning future cities.[2] Furthermore, because of the concurrent rise of digital technology and its promise to support solutions towards various urban problems, countries at all income levels are integrating evermore digital technology in their current cities and envisioned city planning. Similarly, the transition towards a Circular Built Environment (CBE), which promises solution pathways to urban problems such as greenhouse gas (GHG) emissions or wasteful resource consumption, is being adopted widely as a cornerstone of urban development visions. While a city connected to digital technology is commonly referred to as a 'Smart City', increased digitalisation is also often associated with making the built environment more circular. Several authors have argued digital technology possibilities can play significant roles in the CBE. For example, Çetin et al. explored the potential role of digital technologies in a CBE across the life cycle stages of buildings.[3] According to Formisano et al., the level of Circular Economy (CE) implementation in a city is correlated with the overall presence of advanced digital infrastructure.[4] In this paper, we propose the term 'Smart Circular City (SCC)' to refer to cities implementing CBE initiatives supported by digital technologies.

However, while academic publications or company products and services might already be working towards the SCC, the extent to which actual digital technologies are implemented or envisioned in city governments' CBE policies has hardly been investigated. Existing frameworks to screen and compare cities also do not strongly link digitalisation and CE endeavours. Although the Smart City Index[5] or the Smart Cities Ranking[6] include indicators related to CE to score and rank cities across the world, those indicators are not explicitly linked to the use of digital technology. Similarly, although CE evaluation tools like the Circular Economy Index[7] or the Circular Jobs Monitor[8] describe actual implementation levels of CE in multiple cities, they do not explicitly mention digital technology contributions to CE. Hence, while CE implementation levels in cities have been researched, even in the context of SC, the actual relationship between SC and CBE – and the existence of SCCs – has seemingly been overlooked.

We argue that a possible first step towards a better understanding of the co-implementation of these concepts world-wide, in different contexts, is developing a framework to evaluate the breadth of implementation of smart (i.e. digitalised) CBE innovations in cities. Such a framework, using an easy to apply screening approach, enables various comparative analyses regardless income level, region, etcetera. In other words, our aim is to investigate the intersection of the Venn diagram in Figure 1.

This paper proposes a new framework to evaluate CBE and related smart technologies in a straightforward, coarse way (i.e. not requiring nor providing minute detail), in order to help explore, map and understand this topic better.
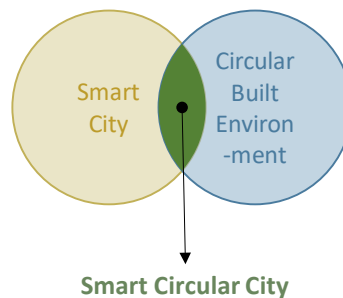

Figure 18. Our aim: Better understanding intersection of SC and CBE.

BACKGROUND IN RELATION TO THE PROPOSED EVALUATION FRAMEWORK

This section provides background information regarding the CBE perspectives and categorisations used to structure our evaluation framework.

Four goals of CBE approaches

The first perspective to categorise our framework is aiming direction of CBE. According to Çetin et al., CE flows and approaches can be divided into four goals related to reducing environmental burdens[9]. Those four goals are:

• Narrow: input less resource into a product and pursue more resource efficiency.
• Slow: use resources repeatedly and extend the valuable service life.
• Close: return the building resources to the economic cycle when the building reaches end-of-life.
• Regenerate: upgrade the condition of a building system so that its impact on the environment is net positive.

Four reuse flows at the building level

The second perspective is at which level in a building we can reduce environmental burdens. In the CBE, one of the main goals is to utilise the more complicated assemblages of the CBE longer or more frequently, as these will have the highest embodied value (e.g. embodied carbon, invested time and money, functional utility). In that sense, Sanchez & Herthogs proposed four levels of utilisation or reuse flows: 1) buildings and structures, 2) systems, 3) components, and 4) materials.[10] This framework explicitly considers a fifth flow, 'waste', to be outside of the CE.

Six factors at the urban level

The third perspective designates in which sector in an urban structure we can address environmental burdens. As we will mention later, government documents do not only mention CBE initiatives at a building level, but also at the urban level. Similar to the building four levels, we propose six factors for the urban level: Awareness creation, Bottom-up, Top-down, Network development, Education tools, and CE infrastructure.

METHODOLOGY - SMART CIRCULAR CITIES EVALUATION FRAMEWORK

In this section, we introduce our methodology and framework. Our evaluation framework is a categorisation of types of (Smart) CBE approaches, strategies and solutions and an evaluation and mapping of publicly available evidence – as found in written sources – that a particular city has

implemented or is planning to implement (Smart) CBE approaches of these particular categories. In order to cover a broad spectrum of cities, as well as increase the chance of potentially interesting comparative analyses, we screened relevant official documentation from 12 cities in Europe and Asia.

Aim and scope of the framework

In order to better understand the relation between CBE and Smartness, we aimed to create a framework to evaluate and map which types of CBE strategies are being implemented in which cities. We developed our framework to evaluate and map which types of (smart) CBE initiatives (i.e. approaches, strategies, technical solutions, …) are or will be implemented in which cities. We set out to develop an SCC evaluation framework that:

1. can be used for any city in the world (based on straightforward screening of indicators);
2. can distinguish between existing policies and envisioned future ones;
3. can distinguish between CBE innovations and Smart CBE innovations;
4. can distinguish between CBE innovations of different themes and categories; and,
5. can be extended to include new indicators, as new innovations emerge, without affecting the scoring methodology.

Searching for Circular Built Environment initiatives in government documents

We checked documents and web-pages that came up when Google searching for e.g. 'the city's name' plus 'circular economy', 'recycle', or other words related CBE to see if they covered government-supported initiatives. We screened the resulting sources for references to initiatives that matched particular indicators, and screened any related sources referenced by that source as well. This exploration took place from November 2022 to April 2023.

This data gathering methodology implies our screening was limited by the capacities of the researcher doing the screening (first author), in terms of background knowledge of each city, the city's country and context, as well as the extent to which information was available in (translatable) English. In addition, our screening measures public communication more than actual results; cities that publicly promote the implementation of CBE strongly tend to score higher. However, because our framework is straightforward to apply, anyone could adopt it for their particular language, region, or purpose.

Categorising Smart Circular Concepts and Innovations

After screening government documents, we categorised those CBE initiatives and reworked specific initiatives into more generalised indicator descriptions that could be applied to other cities. We describe initiatives at the urban and building level as CBE Actor Initiatives and CBE Design and Construction (D&C) Initiatives respectively. The former includes approaches, strategies or solutions implemented to stimulate (often social) processes across the built environment in its entirety. The latter includes strategies and solutions implemented in individual design and construction projects, at the built level. As we already described, we have three perspectives to categorise our framework - four goals of CBE, six factors at the CBE Actor Initiatives level, and four factors at the CBE D&C Initiatives level. All resulting CBE indicators are fully described and categorised in Table 1 (CBE Actor) and Table 2 (CBE D&C) respectively.

Factor	Narrow Use fewer resources	Slow intensify their use and extend their life through design and operational strategies	Close bring resources back into the economic cycle when their end-of-use stage	Regenerate upgrade the state of systems by pursuing a net positive impact on the environment.
Awareness creation	Conduct national awareness campaign on using fewer resources.	Conduct national awareness campaign on intensifying the buildings or products use and extending their life.	Conduct national awareness campaign on recycling and reusing.	Conduct national awareness campaign on upgrading the system so that the environment can be impacted positively.
	Provide environmental signs and other information which tell us the product or building use fewer resources (e.g. green certification).	Provide environmental signs and other information which tell us the buildings or products intensify their use and extend their life (e.g. green certification).	Provide environmental signs and other information which tell us the product or building are made of recycled or reused materials (e.g. green certification).	Provide environmental signs and other information which tell us the product or building upgrade the system so that the environment can be impacted positively (e.g. green certification).
Bottom-up	Propose solutions of social issues and policy/regulation barriers related to using fewer resources with citizen participation.	Propose solutions of social issues and policy/regulation barriers related to intensifying the buildings or products use and extending their life with citizen participation.	Propose solutions of social issues and policy/regulation barriers related to recycling and reusing with citizen participation.	Propose solutions of social issues and policy/regulation barriers related to upgrading the system so that the environment can be impacted positively with citizen participation.
	Establish mechanism which enables citizens to set up their own community based using fewer resources.	Establish mechanism which enables citizens to set up their own community based intensifying the buildings or products use and extending their life.	Establish mechanism which enables citizens to set up their own community based recycling and reusing.	Establish mechanism which enables citizens to set up their own community based upgrading the system so that the environment can be impacted positively.
Top-down	Draw up a value-chain assessment in order to use fewer resources.	Draw up a value-chain assessment in order to intensify the buildings or products use and extend their life.	Draw up a value-chain assessment in order to bring resources back into the economic cycle when their end-of-use stage.	Draw up a value-chain assessment in order to upgrade the state of systems by pursuing a net positive impact on the environment.
	Disclose city agenda for using fewer resources and map existing initiatives.	Disclose city agenda for intensifying the buildings or products use and extending their life and map existing initiatives.	Disclose city agenda for recycling and reusing and map existing initiatives.	Disclose city agenda for upgrading the system so that the environment can be impacted positively and map existing initiatives.
	Establish evidence base for the economic, social and environmental benefits using fewer resources.	Establish evidence base for the economic, social and environmental benefits of intensifying the buildings or products use and extending their life.	Establish evidence base for the economic, social and environmental benefits of recycling and reusing.	Establish evidence base for the economic, social and environmental benefits of upgrading the system so that the environment can be impacted positively.
	Offer financial support aligned with principles of using fewer resources.	Offer financial support aligned with principles of intensifying the buildings or products use and extending their life.	Offer financial support aligned with principles of recycling and reusing.	Offer financial support aligned with principles of upgrading the system so that the environment can be impacted positively.
	Promote research and innovation in using fewer resources.	Promote research and innovation in intensifying the buildings or products use and extending their life.	Promote research and innovation in recycling and reusing.	Promote research and innovation in upgrading the system so that the environment can be impacted positively.
	Create employment opportunities through the promotion of using fewer resources.	Create employment opportunities through the promotion of intensifying the buildings or products use and extending their life.	Create employment opportunities through the promotion of recycling and reusing.	Create employment opportunities through the promotion of upgrading the system so that the environment can be impacted positively.
	Enhance public procurement aligned with principles of using fewer resources.	Enhance public procurement aligned with principles of intensifying the buildings or products use and extending their life.	Enhance public procurement aligned with principles of recycling and reusing.	Enhance public procurement aligned with principles of upgrading the system so that the environment can be impacted positively.
Network development	Design a donation, sharing, resale, and repairing scheme.	Same as Left	Same as Left	---
	Facilitate circulation between primary producers and recyclers of all materials.	Same as Left	Same as Left	---
	Provide platforms to share skills, knowledge, spaces, tools, and things.	Same as Left	Same as Left	---
	Establish partnerships between different institutions to jointly promote using fewer resources.	Establish partnerships between different institutions to jointly promote intensifying the buildings or products use and extending their life.	Establish partnerships between different institutions to jointly promote recycling and reusing.	Establish partnerships between different institutions to jointly promote upgrading the system so that the environment can be impacted positively.
	---	---	Bringing together economic parties along the value chain in order to close loops and make the chain as complete as possible within our region.	---
	Enhance the principle of using fewer resources by using social network services (e.g. digitally enabled feedback system).	Enhance principle that is intensifying the buildings or products use and extending their life by using social network services (e.g. digitally enabled feedback system).	Enhance principle of recycling and reusing by using social network services (e.g. digitally enabled feedback system).	Enhance principle that is upgrading the system so that the environment can be impacted positively by using social network services (e.g. digitally enabled feedback system).
Education tools	Prepare a building operation manual, in which the technical functions of the buildings are explained, to promote using fewer resources.	Prepare a building operation manual, in which the technical functions of the buildings are explained, to promote intensifying the buildings or products use and extending their life.	Prepare a building operation manual, in which the technical functions of the buildings are explained, to promote recycling and reusing.	Prepare a building operation manual, in which the technical functions of the buildings are explained, to promote upgrading the system so that the environment can be impacted positively.
	Demonstrate the benefits of using fewer resources.	Demonstrate the benefits of intensifying the buildings or products use and extending their life.	Demonstrate the benefits of recycling and reusing.	Demonstrate the benefits of upgrading the system so that the environment can be impacted positively.
	Create an educational toolbox that tells using fewer resources for schools, extracurricular institutions, and city staff.	Create an educational toolbox that tells intensifying the buildings or products use and extending their life for schools, extracurricular institutions, and city staff.	Create an educational toolbox that tells recycling and reusing for schools, extracurricular institutions, and city staff.	Create an educational toolbox that tells upgrading the system so that the environment can be impacted positively for schools, extracurricular institutions, and city staff.
	Provide targeted knowledge, best practice compilations regarding using fewer resources.	Provide targeted knowledge, best practice compilations regarding intensifying the buildings or products use and extending their life.	Provide targeted knowledge, best practice compilations regarding recycling and reusing.	Provide targeted knowledge, best practice compilations regarding upgrading the system so that the environment can be impacted positively.
	Develop how-to guides for co-design processes regarding using fewer resources with end-users and stakeholders (e.g. workshop guides).	Develop how-to guides for co-design processes regarding intensifying the buildings or products use and extending their life with end-users and stakeholders (e.g. workshop guides).	Develop how-to guides for co-design processes regarding recycling and reusing with end-users and stakeholders (e.g. workshop guides).	Develop how-to guides for co-design processes regarding upgrading the system so that the environment can be impacted positively with end-users and stakeholders (e.g. workshop guides).
CE infrastructure	---	---	Establish a recycling and processing plant.	---
	Provide collection, storage, sorting, and procurement solutions for the reuse and recycling of materials, components, or systems.	Same as Left	Same as Left	---
	Recognise and map waste and CE resources in the city (e.g. "library of things" or "buildings material bank" across the city).	Same as Left	Same as Left	---
	Collect information about construction products used and their composition (e.g. materials passport, BIM, inventory) to facilitate their re-use.	Same as Left	Same as Left	---
	---	---	---	Design energy grid so that the building connected to the grid can offer renewable energy generated in the building to others through the grid (e.g. electricity, hotwater, etc. smart grid).

Table 1. All CBE Actor Initiatives which are acquired in the government documents and generalised.

Factor		Narrow Use fewer resources	Slow intensify their use and extend their life through design and operational strategies	Close bring resources back into the economic cycle when their end-of-use stage.	Regenerate upgrade the state of systems by pursuing a net positive impact on the environment.
Buildings and structures		Minimise the quantities of materials used.	Design for social or structural adaptability or flexibility.	Design for recoverability at the building level.	Building contributions to human, nature, or both societies rather than draws from its environment. (e.g. offer spaces so that local community can use there, generate clean water or electricity, improves ecosystem by providing habitat.)
		Reduce the amount of living space provided per person.	Establish standards for long-life building design.		
		Support users to make optimal use of resources (energy, water, materials and space) in their buildings.	Extend the lifespan by facilitating maintenance and repairs.		
			Reuse existing buildings instead of using new ones.		
Systems		Use pre-fabricated systems to ensure that the construction and deconstruction generate little waste.	Utilise reversible connections.	Design for recoverability at the system level.	Adaptive systems that can be altered to better balance a buildings and structures contributions to its dynamic environment without jeopardising its primary functions. (e.g. green roof ecosystem which prevents the rise of surface temperature as well as offers habitats to animals.)
			Apply design for longevity.		
			Establish standards for long-life system design.		
Components		Use pre-fabricated components to ensure that the construction and deconstruction generate little waste.	Utilise reversible connections.	Design for recoverability at the component level.	Assemble healthy and renewable materials which affect positively the buildings and structures and surrounding environment (e.g. porous bricks in which bees breed) without being environmentally harmful.
			Apply design for longevity.		
			Establish standards for long-life component.		
Materials		The number of types of materials is minimised.	Use durable materials.	Avoid using composite materials whose parts cannot be separated out during deconstruction or subsequent processing.	Use recycled or bio-based materials which repair themselves (e.g. fungi or algae) or without jeopardising surrounding environment.
			Avoid using materials known to have established downcycling chains.	Use materials known to have established reuse, upcycling, or recycling chains. Raw materials are obtained locally.	

Table 2. All CBE D&C Initiatives which are acquired in the government documents and generalised.

Evaluating Smart Circular Indicators by screening city initiatives

As our assessment methodology is in essence a categorisation of types of (Smart) CBE and present/envisioned status, the framework to assess is introduced. When government initiatives matching an indicator in Table 1 and Table 2 are found, two additional characteristics of the initiative – whether it refers to a present or envisioned situation and whether it is supported by smart technology or not – need to be determined. This can be done using the evaluation frameworks shown in Table 3 and Table 4. When we screen an initiatives of a city, we consider which category in Table 3 and Table 4 the indicators shown in Table 1 and Table 2 belong to.

Factor	Narrow Use fewer resources				Slow intensify their use and extend their life through design and operational strategies				Close bring resources back into the economic cycle when their end-of-use stage.				Regenerate upgrade the state of systems by pursuing a net positive impact on the environment.			
	Present		Envisioned		Present		Envisioned		Present		Envisioned		Present		Envisioned	
	Not smart	Smart	Not smart	Smart	Not smart	Smart	Not smart	Smart	Not smart	Smart	Not smart	Smart	Not smart	Smart	Not smart	Smart
Awareness creation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bottom-up	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Top-down	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Network development	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Education tools	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CE infrastructure	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3. Evaluation framework of CBE Actor Initiatives (urban level).
Every initiative can be identified according to the criteria we set.

Factor	Narrow Use fewer resources				Slow intensify their use and extend their life through design and operational strategies				Close bring resources back into the economic cycle when their end-of-use stage.				Regenerate upgrade the state of systems by pursuing a net positive impact on the environment.			
	Present		Envisioned		Present		Envisioned		Present		Envisioned		Present		Envisioned	
	Not smart	Smart	Not smart	Smart	Not smart	Smart	Not smart	Smart	Not smart	Smart	Not smart	Smart	Not smart	Smart	Not smart	Smart
Buildings and structures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Systems	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Components	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Materials	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4. Evaluation framework of CBE Design and Construction Initiatives (built level).
Every initiative can be identified according to the criteria we set.

Scoring is generous. If source material discusses an indicator type, this indicator scores 1 for that city(if not, it scores 0). The category is covered by a city (score of 1) if any indicator is present in its initiatives (score of 1). The number of indicators per category is non-exhaustive, and can be extended if a city features approaches not mentioned in the framework. Hence, the framework results in a

generous and non-detailed mapping of the types of goals and concepts related to (smart) CBE. However, non-specific target statements in the source material are to be excluded from assessment. An example of a non-specific statement is 'Specify and source materials and other resources responsibly and sustainably'.

Selecting 12 cities to evaluate

We applied the framework to 12 cities and evaluated those. This evaluation and mapping reveal whether a particular city has publicly available evidence, as found in written sources, scoring whether it supports or will support particular types of CBE innovations. In order to cover a broad spectrum of cities, firstly we included prime examples of Smart Cities, the top four cities in the Smart City Ranking 2021: Singapore, Zurich, Oslo and Taipei.[11] We then added Northern-European cities known for their implementation of CBE innovations and policies in the Circular Economy Index: Brussels, London, Paris, and Berlin.[12] Since those eight cities are all in high-income countries, we added four cities in middle-income countries that are developing envisioned (Smart) Cities with estimated budgets exceeding 2,000m USD.[13] Iskandar (Malaysia); Makassar (Indonesia); Manila, and Bangkok. Consequently, the total set of cities also allows a comparison between Asian and European cities.

Scoring method

For comparisons of the contribution to CBE of different factors in a city, or for comparisons between different cities, the scores obtained by the city are calculated. However, a simple total sum would give a city with the higher CBE Actor score an advantage because there are six factors for CBE Actor and only four factors for CBE D&C. Therefore, the total score adds up the total CBE Actor score divided by six and the total CBE D&C score divided by four.

COMPARING 12 CITIES' CBE IMPLEMENTATION LEVEL

This section discusses present and envisioned CBE implementation levels for 12 cities, as observed in official written source material on CBE initiatives by city government actors.

CBE Actor Initiatives implementation level in 12 cities

The radar charts shown in Figure 2 illustrate the CBE Actor Initiatives implementation level in 12 cities. The blue line and orange line represent present and envisioned initiatives. The letters A, B, T, N, E, and C represent each of the six CBE Actor factors. In addition to the 12 cities, a chart with the average indicator scores is shown in the bottom right-hand corner.
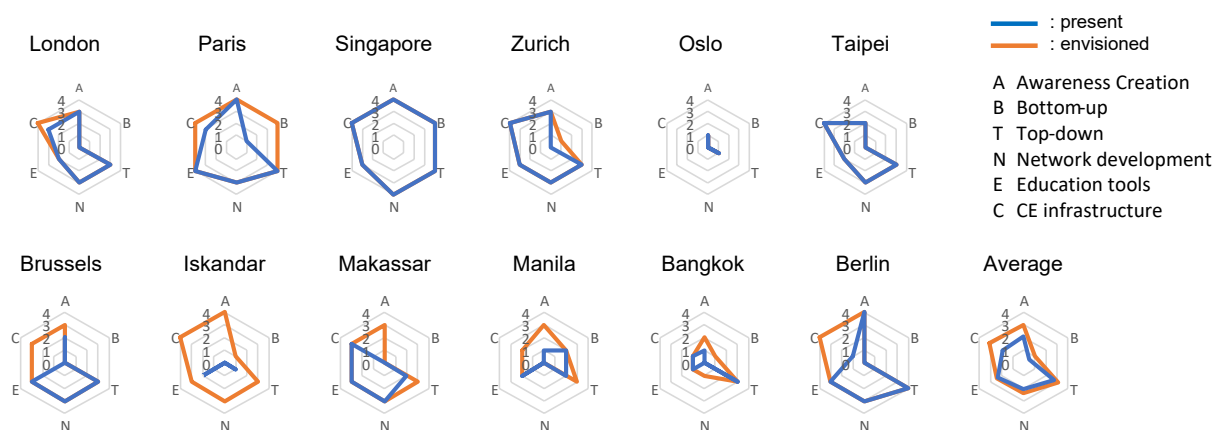

Figure 19. The level of implementation of the six elements of the CBE Actor is represented in a radar chart for each city. Overall, the Bottom-up initiatives have the lowest values.

Excluding Singapore, Oslo, and Taipei, all of the cities increase their CBE score from present to envisioned. On average, Top-down initiatives (e.g. offer financial support aligned with principles of using fewer resources) and CE infrastructure (e.g. Provide collection, storage, sorting, and procurement solutions for the reuse and recycling) are the most common (each scoring 3.08 on average). Bottom-up initiatives, including 'Establish mechanism which enables citizens to set up their own community' are the least common .

CBE D&C implementation level in 12 cities

The radar charts illustrating the level of implementation of CBE Design & Construction (D&C) initiatives are shown in Figure 3 in the same way as Figure 2.
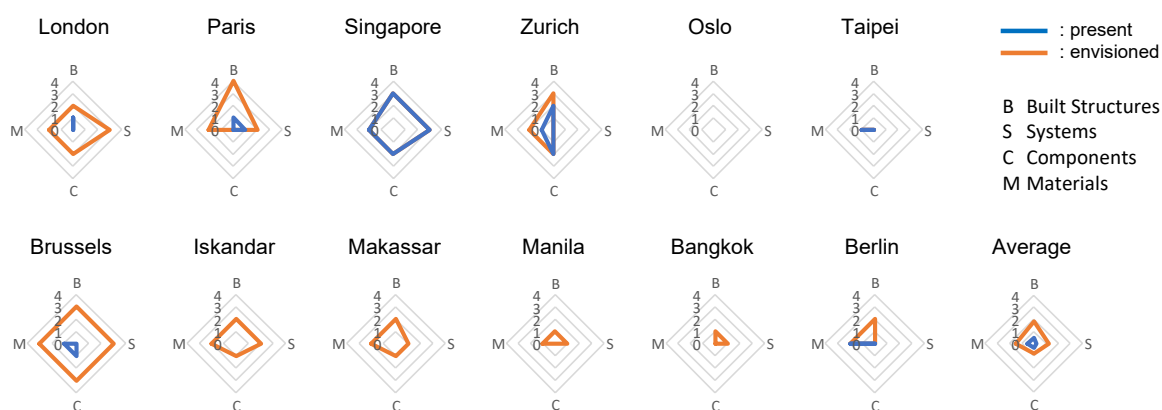

Figure 20. The level of implementation of the four elements of the CBE D&C is represented in a radar chart for each city. Present middle-income South-east Asian cities do not get even one score while their score would improve in the future. Oslo scores zero in both the present and the future.

Based on present-day initiatives, middle-income cities in South-East Asia do not score any points, but their scores improve in the envisioned cities. The gap between present and envisioned scores is larger than it was for CBE Actor scores. We did not find any CBE D&C policy in both the present and the envisioned cities of Oslo, despite it being ranked in the top 4 of the Smart City Index 2021.[14] As mentioned when we described the limitations of our approach, only policies written in English are taken into account, which might explain this lack of evidence.

CBE cumulative scores of 12 cities

Figure 4 shows the CBE cumulative score of each city, ranked from left to right in descending order of total score, for present and envisioned conditions. CBE Actor scores are green and CBE D&C scores are yellow. The four CBE goals (narrow, slow, close and regenerate) are indicated using shades of the main two colours.
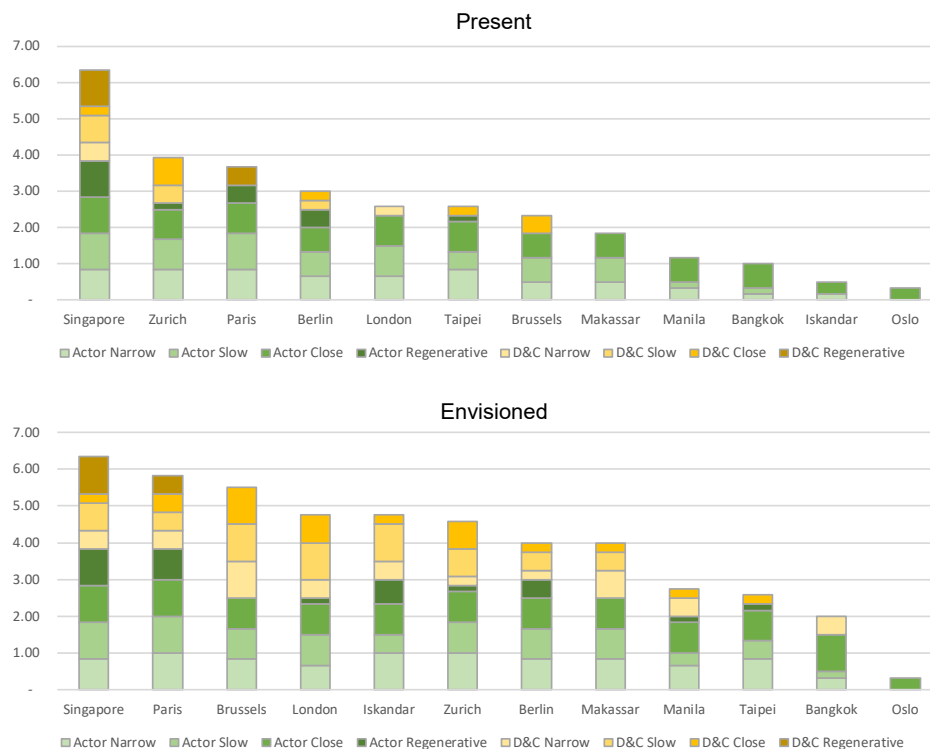
Figure 21. CBE cumulative scores of CBE four strategies (Narrow, Slow, Close, and Regenerate) in Actor and D&C. Iskandar and Makassar increase their score in their envisioned situation.

When present and envisioned situations are compared, the portion of CBE D&C clearly increases. In general, CBE Actor Initiatives dominate, and seemingly precede CBE D&C initiatives. This might be, for example, because CBE Actor Initiatives are easier to set up (e.g. less costly), or more suitable in governance. In-depth research could help shed light on this – the aim of our coarse screening framework is only to uncover potential patterns. Iskandar and Makassar in the envisioned situation are notable because their scores are similar to cities in European countries known for strong CE initiatives.[15] In addition, while the Regenerate CBE goal is seen in several cities at the CBE Actor level, only Singapore and Paris introduce such initiatives at the CBE D&C level.

Evidence for the emergence of Smart Circular Cities?

This subsection focuses on CBE initiatives related to digitalisation (Smart CBE initiatives), informing the main question that has driven this study. The bar chart in Figure 5 is the same as in Figure 4, but with a different colour coding scheme. CBE Actor scores are coloured red and CBE D&C scores are blue. Furthermore, Smart CBE initiatives are shown in a saturated colour.
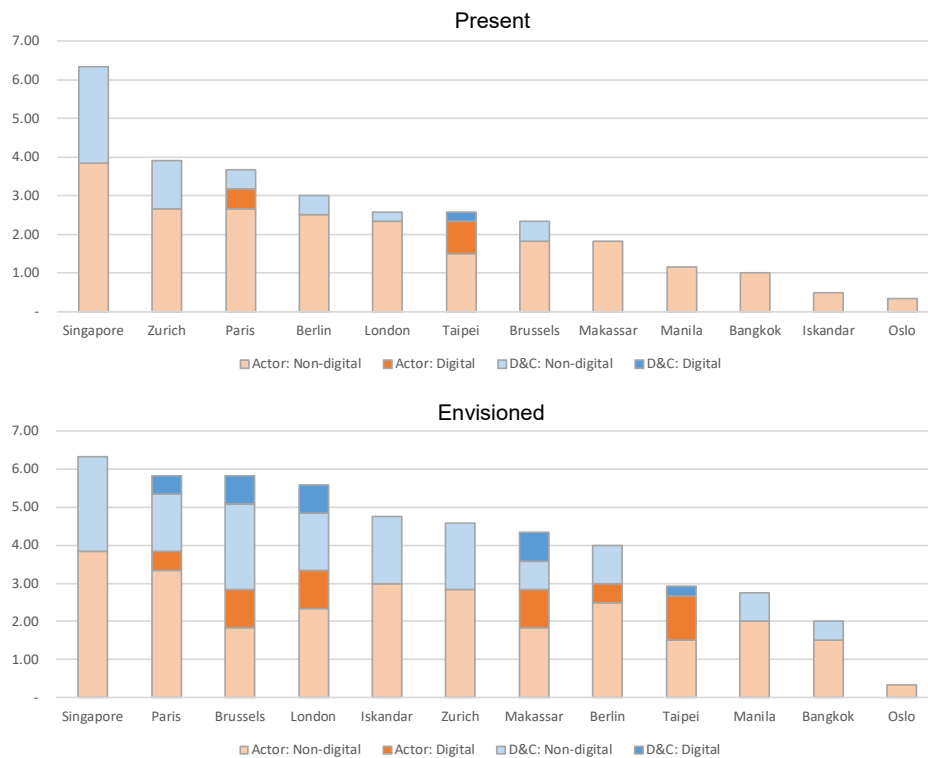
Figure 22. Cumulative digital and non-digital CBE scores in Actor and D&C. Envisioned Paris, Brussels, London, and Makassar would be said emerging SCCs.

Looking at the evaluation results of present-day initiatives, only two cities (Paris and Taipei) have Smart CBE solutions in place, and these represent relatively small parts of their overall CBE score. The fact that there are few cities integrating smart technologies and CBE innovations (and even in those cities, the extent of the integration is limited) supports our starting hypothesis, at least for the 12 screened cities: that links between SC and CBE are not common in present day policy.

In the envisioned cities, the amount of Smart CBE initiatives improves. Since envisioned Paris, Brussels, London, and Makassar increase their scores with multiple digital CBE initiatives, we could call those four emerging Smart Circular Cities.

CONCLUSION

In this work, we investigated the actual state of implementation of the SCC concept by analysing and categorsing CBE policies using a novel evaluation framework. We collected source material for various CBE initiatives from official governmental documents of 12 cities, and categorised them using a framework of indicators. Using this framework, we analysed CBE policies implementation level in the 12 cities. We highlight four useful contributions of this framework.

1. Our framework managed to provide a quantified and detailed analysis of the overlaps between the concepts of Smart Cities and Circular Built Environment, for 12 cities in Europe and Asia.

2. The framework can be applied regardless of a city's region, income level, or focus on present or envisioned initiatives. In addition, it is intentionally broad and extendible, meant as a general screening or mapping.

3. The list of initiatives and examples could be used as a guideline for other cities, to consider new types of SCC initiatives that could be implemented.

4. Based on our results, we note potentially interesting patterns in our 12 cities comparison, which could lead to future work, e.g.:

- To what extent is the regenerate strategy impactful in supporting the CBE compared to other three strategies (Narrow, Slow, and Close)?
- Why do some cities not discuss their envisioned situation (future plans)?

ACKNOWLEDGEMENT

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BIKE/PEDESTRIAN PATH FOR THE UNIVERSITY OF LOUISIANA AT LAFAYETTE

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INTRODUCTION

The Community Design Workshop (CDW) is an Institute within the School of Architecture and Design at the University of Louisiana at Lafayette. The CDW has been involved with community urban design projects in architecture and planning for over twenty-five years. This paper focuses on the development strategies implemented to design and complete the University Bike/Pedestrian Path and explains how the project links the University Research Park to the main campus, approximately four miles. Since this project evolved over a 20-year time span, it was developed in three phases. Phase I: Common Plan for the University Research Park, Phase II: University Bike/Pedestrian Path System, and Phase III: incorporating the Bike/Pedestrian Path plan into the Campus Master Plan and into the City of Lafayette's city-wide bike plan. This project, completed in 2023, demonstrated the importance for public engagement in the design process and the benefits for student involvement in the design development/construction process from idea to completed product Figure 1.

Figure 1. Dedication and Ribbon-Cutting Ceremony for Bike/Pedestrian Path. University of Louisiana at Lafayette President Joseph Savoie, Lafayette Parish-President Josh Guillory, Lafayette Consolidated Government Planning Staff, Lafayette Economic Development Authority Representatives, UL Office of Sustainability Staff, Third Year Architecture Studio[1]

COMMUNITY DESIGN WORKSHOP HISTORY

The Community Design Workshop is a research institute and part of the School of Architecture and Design at the University of Louisiana at Lafayette. Established over 25 years ago, the CDW has completed over 100 projects and worked in 15 parishes within the state of Louisiana. The CDW's focus is to aid neighborhoods, small towns and cities to visualize their potential as a community. The CDW has also been engaged with the master plan of the University of Louisiana at Lafayette and the redesign of the University's historic campus Quadrangle. Operating as a faculty-led, graduate-level studio, the CDW has expertise in urban design, planning, architecture, and sustainability.

The CDW's working method is to establish a collaborative effort with the communities involved through public workshops, charrettes, and by opening an office (squatting) in the neighborhood or downtown being studied. This process allows both faculty and students to be engaged in the context. It also gives the community easy access to the CDW itself on a day-to-day basis. By collaborating with public and private organizations, the CDW is able to effectively integrate the ideas of the community with those of the larger realm.

COMMUNITY AND COLLABORATIVE PROCESS

The CDW has always instituted a public form for its projects to promote and identify two types of discussions: charrettes and public meetings. Public forums are viewed as a critical tool to help educate the public on issues regarding urbanism, architecture, and planning. The meetings provide a collaborative exchange between the CDW, students, faculty, university administration, local and state government officials, and others. All involved are able to present and have their expertise included in the discussion phase. Because of this, the CDW has played the role of both educator and student through the exchange provided by the respective groups.

Charrettes

Charrettes are short design exercises that focus on a wide range of design issues. Numerous charrettes were held and open to the public being as inclusive as possible. Stakeholders were identified and encouraged to lead groups and take active roles during the charrettes along with the University and the CDW's faculty and students. These diverse groups were able to arrive at a consensus regarding the importance of this project to the community and University with respect to planning, architecture, and landscape. Many issues were discussed including policies and procedures, lighting concerns, sound issues and the overall properties' aesthetics. "Graphically representing ideas through vignettes and perspectives can assist stakeholders in creating a shared vision."[2] The origins of ideas that were presented in development drawings and meetings can be traced back through the design process.

Public Meetings

A series of public meetings provided a forum for presenting ideas about urbanism to the University officials, student organizations, faculty, university administrators and local and community leaders. Public meetings encouraged the formal exchange of ideas between all of these parties. Armed with the information gleaned from the charrettes and from research, meetings were held to inform and educate the public regarding the process and progress of the project. These public meetings allowed the CDW to stress concepts and procedures for urban design.

COMMON PROJECT (Phase I)

The first phase was to develop the Common Project. This study area included the University Athletic Field, Blackham Colosseum, Ira Nelson Horticulture Center and The Research Park. This very important step allowed the University to see that there was a synergy in linking all the facilities into a

collective whole. This allowed for an expanding role and voice for each of the aforementioned facilities for the design of the project. Isolated parts were bonded together with gardens and bike/walking paths, served as infill, and acted as connectors between each distinct facility. "The art of the garden designer is much like that of the architect. The ground plane is a natural starting point and vertical elements can be raised from it to bound and focus spaces…. Connections can be made by forming openings, and sequences of movement through the space can be composed."[3]

Phase I began with the CDW working extensively with the University of Louisiana at Lafayette in developing a Master Plan. In 2004, the study area was defined by Johnston Street to Eraste Landry. Between Johnston Street and West Congress, Cajundome Boulevard, North College Drive and Bertrand Drive mark its western edge. At West Congress, the site extends west to the edge of the University Medical Center parking lot. A series of residential neighborhoods define the eastern edge of the project area and the western edge north of Abdalla Hall. Existing within these boundaries were large areas of undeveloped land that separated a diverse range of buildings and activities encompassing several different administrative concerns and landscape typologies.

Challenge

The CDW's challenge was to connect these diverse elements and unite them in a larger context without compromising the individuality of each of the entities. Frank Gehry stated this best with his quote "The whole can be greater than the sum of its parts, that we all have something to put in the pie to make it better, and that the collaborative interaction works."[4] The end result for the first part of this project, was an urban design proposal that linked the various isolated pieces of property with a series of gardens, walking trails, and bike paths Figure 2. The 502 Architectural Studio was the instrument in which the university, administration, students, faculty, and stakeholders came together in a series of public meetings and charrettes.
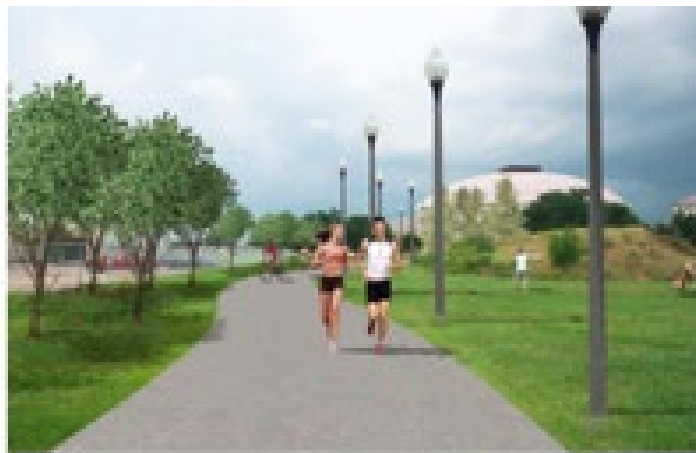

Figure 2. Preliminary Design of Multi-Use Facility

Multi-Use Facility Bike Path (Phase II)

The second phase was to identify projects that evolved from the Common Project that could be designed, funded, and constructed. The most feasible design showing the most promise for success was to design a bike/pedestrian path that would run the length of the Common Project. "Walking, bicycling, and public transit on an interconnected network of streets, alleys, paths, greenways, and waterways that enhances convenient and healthy mobility, connectivity, and efficiency need to replace the automobile for routine trips."[5] The design concept for the Bike/Pedestrian Path was to link

the University of Louisiana at Lafayette's southern campus starting at the Research Park to the traditional campus with an approximate two-mile bike path and pedestrian walking trail. The path would allow the university property to be visualized as one expansive property rather than a series of individual ones. "Biking can be a major alternative to the automobile for local trips, trips to the transit stop, or trips to work. Separated or marked bike lanes on several primary routes through the core area will support this alternative as will the bike path along green ways."[6]

The graduate Urban Design Studio proposed urban design strategies for the southern campus and connection strategies to the traditional campus. The CDW continued this design process, wrote the grant, participated with various professionals, and produced the construction documents which were ready for bidding. From the conceptual design to completion of construction documents, it took approximately six years to complete this second phase. Project work was interrupted with two major hurricanes hitting this area of Louisiana with each having a significant impact on the area. This magnified the importance of collaboration, patience, and endurance.

Figure 3. Completed Multi-Use Facility along Johnson Street

Partners

The importance of working and collaborating with strong partners became evident while working on the Common Project and even more important relationships were established while working on Phase II. This funded one-million-dollar enhancement grant from the Department of Transportation and Development of Louisiana was completed in October 2015 Figure 3. The design and construction of this bike/pedestrian path was a collaborative effort between the 502 Graduate Studio, the CDW, university administration and officials, local professionals including civil engineers, architects and landscape architects, Lafayette Economic Development Authority and the Louisiana Department of Transportation and Development. Each played a significant role in helping this important connector device, which allowed for linkage between the two campuses.

The CDW continued to collaborate with Lafayette Economic Development Authority (LEDA) and the College of Life Science to procure an enhancement grant from the Louisiana Department of Transportation and Development (DOTD) for the bike path and walking trail. The CDW was asked to write the argument for the needed facility and to calculate the budget, which required a series of meetings with LEDA and the Dean of Life Science. The studio then presented the project to the regional director for DOTD. The position put forth stated that this path was creating a form of alternative transportation, and this multi-use path was a linking element between the two separate

campuses and the city park Figure 4. The grant proposal was awarded to the University in the amount of one million dollars for a facility of about two miles in length. The collaboration of faculty, students, the CDW, LEDA and the College of Life Science was a lesson for the students that all involved must work in teams and allow different talents to contribute to the project.

Working Drawings

The next step in the design process was to work with a wide range of professionals to complete a set of construction documents for the purpose of bidding and building the facility. Civil engineers and landscape architects agreed to mentor, coach, and teach myself and my students in their respective disciplines. Architecture students had to learn the discipline of civil engineering and the proper selection and placement of plants. The electrical engineer also participated but to a lesser degree. The DOTD also agreed to help us navigate their rigorous process of review. After four drawing reviews and a plan in hand the project received additional stimulus funds.

Figure 4. Preliminary Design Section – Phase II

Construction

The construction of the bike/pedestrian path was a ten-month process in which the studio had a secondary role. The University's Facilities and Planning Department supervised the construction, but the studio and students were still involved with helping the Facilities and Planning Department troubleshoot issues that arose in the building of the facility. Students checked the bid proceeds, updated drawings, and print drawings, and inspected the project on a weekly schedule until its completion in 2015.

Figure 5. Preliminary Design Plan – Phase III

Multi-Use Facility – Main Campus (Phase III)

Phase III of the Bike/Pedestrian connected the University Research Park (referred to as Common Area in Phase I) with the traditional campus. This area included the Cajundome and Convention Center and Cajun Field and is separated by four blocks belonging to the city of Lafayette. This multi-use facility (bike/pedestrian path) was integrated into the city-wide biking network plan. The multi-use facility also connected to Girard Park, a city owned park adjacent to UL's traditional campus, and to the Chitimacha Trail, a bike trail being commissioned by Lafayette Parish. The Chitimacha Trail is designed to run from downtown Lafayette to St. Martinville Figure 5.

Planning Phase

Phase III planning required a more regional design approach. The CDW collaborated with Lafayette Consolidated Government to pursue a grant from the Federal Highway Administration for funding for alternative forms of transportation. Working with Lafayette Consolidated Government required a more regional understanding of how the University's Bike/Pedestrian Path could be integrated into Lafayette's regional bike plan. "Regional design is an act that integrates multiple facets at once: the demands of the region's ecology, its economy, its history, its politics, its regulations, its culture, and its social structure. And its results are specific physical forms as well as abstract goals and policies – regional maps and neighborhood urban design standards as well as implementation strategies, governmental policies, and financing mechanisms."[7] The most difficult part of this design phase was having the bike/pedestrian path cross a major arterial in the city of Lafayette, Johnston Street, and also it had to cross a collector street, St. Mary Boulevard, through the main campus. Therefore, the safety of the students (pedestrians) and cyclists was paramount. "According to the National Survey of Pedestrian and Bicyclist Attitudes and Behaviors, more than 13% of people reported they felt unsafe while bicycling mainly due to motorists, followed by uneven walkways or roadways, dogs and other animals, and potential for crime. Therefore, to encourage people in the US to ride bicycles more often and to use bicycles for everyday travel, it is imperative to provide supportive environments such as bike paths."[8]

Keeping safety paramount, the CDW proposed a series of crosswalks. A major crosswalk is at the major arterial - Johnston Street. A series of crosswalks were designed for access across the local streets at Lewis Street and St. Mary Boulevard.

Construction

Once on campus, the bike/pedestrian path grants access to Girard Park, adjacent to campus on the southern side. At Girard Park the path takes a turn to the east and passes in front of the new Student Union, then continues on McKinley Street until it ends on University Avenue, only a few blocks from the City's proposed Chitimacha Trail. The process of design was repeated for Phase III multi-use facility within the public charrettes. The preliminary design included input from our partners and stakeholders. A civil engineering firm completed the construction documents and supervised the construction of the multi-use facility. Completion of this project was in the fall of 2022 Figure 6 with a dedication and ribbon cutting ceremony held in the spring of 2023 Figure 1.

CONCLUSION

The success of a project of this size and spanning almost twenty years from start to completion, required collaboration of many hands and hearts, ranging from the University's student body, faculty, and outside professionals and government entities. Students took away many valuable lessons and job skills including how to work and collaborate as a team and the importance of utilizing professionals from their respective fields. Students also learned that working with any government entity required patience and endurance.

The Bike/Pedestrian Path for the University of Louisiana at Lafayette provides numerous benefits to the University and the City of Lafayette residents. Not only did the University receive two-million-dollars to fund this multi-use facility that improved the linkage between the two separated campuses, but they also received a facility that improved the safety for students in a congested traffic area. The process and completion of the multi-use path actually became the catalyst for the City of Lafayette to begin work on its own bike path plan. University President Joseph Savoie stated at the dedication/ribbon cutting ceremony "the campus community and adjacent neighborhoods benefit from improved access to safe, enjoyable bike and pedestrian infrastructure connecting parks and recreation centers, shopping centers, and our Ragin' Cajun Athletics facilities to the places they live, work, and learn."[9]

Figure 6. Completed Multi-Use Facility 2023

NOTES

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THIS IS NOT A GUIDE: A POETIC REIMAGINING OF "GUIDANCE" IN THE CITY

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INTRODUCTION

The concept of "guidance" is neglected as an area of interest, defined as "help and advice about how to do something or about how to deal with problems."[1] Yet cities are abundant with types of guidance, such as maps, travel guides, and manuals to cultural or medical services, with this paper arguing that poems themselves act as "guided forms." Writing a poem involves consistently playing with form and language[2] and thus interacting with poetry involves subverting guidance. Moving through three sections and blending critical theory, prose poetry, and hybrid writing, this article proposes a creative-critical approach to rethinking how cities and poetry interact. Centering a rethinking of memoir, an exploration of "poetic experience," and introducing a "language of building," the paper addresses calls to prioritize rather than treat as an addendum seemingly "atypical" minds, bodies, and neglected spaces and objects,[3] and therefore contributes to existing urban knowledge production. Rather than focusing on one specific city or case study, the paper seeks to draw on the more abstract, symbolic, and creative ways that the "urban" and the "poem" interact. The research takes Benjamin's approach to seeing the city as a unique space and small world, where built environment interacts with memory, and space and time interact in transient ways.[4] The paper will express how poetry develops a "life" of its own in the city, elevating sidelined experiences.

EVERYTHING IS MEMOIR

Within the city the line between the individual and the social is thin, as people and institutions blend into one another through numerous urban engagements. The concept of guidance is important here because a traditional guide to the city can help the citizen navigate the urban landscape. However, engaging in poetry, be that reading it or writing it, can offer alternative guidance for those who might not feel that the city speaks to or guides them.

Furthermore, the line between a material and "emotional" form is blurred within the city. Guidance relates to both physical forms at hand that offer practice advice, as well as more symbolic or even "spiritual" or emotional guidance.[5] A poem can act as a blending of the material and emotional, a "portable paradise" as poet Roger Robinson expands on in his collection, where you can both physically and theoretically carry a poem with you to lift your spirits or hold on to memories.[6] Thus a poem becomes a way of spelling out life experiences, creating miniature or multiple memoirs throughout the city.

Contemporarily, poetic theory and practice allows for a constant manipulation of and experimentation with language, language becomes movable or fugitive and unstuck to one definition, form, or rule.[7]

Creative writing therefore becomes a starting point to reimagining or redesigning the city because a poem can symbolize its own world, with evolving events, characters, and exchanges.

Seeing a poem as a combination of something physical and emotional creates an interdisciplinary approach to reshaping the city in a way that accounts for the multiplicity of bodies and minds. Current critical theory has departed from a Cartesian approach where the mind and body are seen as separate, and instead knowledge production can be an embodied experience, where objects, sensations, and thought processes are in constant rotation.[8] Through this interaction between the body, the brain, and surrounding space, anything in the city can act as an "urban guide," contributing to an understanding of individual and social experience. As Bardt argues, "the question of how our physical, material environment informs, forms, and guides our thoughts and insights has greater urgency as we approach the limits of an acquisitive and detached intellectual framework."[9]

Putting this creative-critical and embodied approach to the city into immediate practice, what follows are the author's own "fragments" of writing, to borrow from Anne Carson's term.[10] The fragments were read out at the "Livable Cities Conference" in New York[11] and form part of a work-in-progress entitled "everything is memoir" that draws on experiences in the city, where memoir blends personal writing with observing city life, and existing in an urban atmosphere. The following blend of prose poetry and critical writing mark an intermission to the narrative flow, the extracts themselves representative of the many daily directional shifts in the city.

Night is the most innocent time

full of the indexing of daydreams, lurex, and wrinkled nails

My strongest case for night, is walking along the cobble road leading to my house cars motoring on

And just in view a young man swings a plastic bag

A takeaway

A small steaming container

He is looking forward, to a night in on a green bean armchair

All the old people come alive at night, peach slippers dip and slide into the carpet, the same swing of a ballroom dance

Older men shout after me at night, ask me to pick up their voices, their gum teeth drib drab

A night in the city is the shape of a door

Where only the backs of houses can be made out, taking the shape of a

Child's memory card game

I breathed so hard that I ingested the air as if it were food

if you pick up a photo, your fingerprint makes blotches of its frame, nail indent makes a small underline next to a favourite word

The young girl in the photo has collected food in her teeth, dust from the air

Pollen, petrol, plastic

Try to find an untouched thing on this earth, I dare you

A stillness and a spec

In the poet Anne Carson's essay on "stillness," she notes "Emptying a canvas of marks or a musical score of notes makes a stillness where the rest of the world can enter."[12] This experience of "stillness" in relation to something that remains empty but infused with meaning connects both to "walls" and the blank page. Whilst seemingly unexciting or silent, the page and the wall offer endless possibility, where "the world can enter" and imagination can run free. Walls, through their perceived static, elicit confidence in the difficulty of the writing process, and the ultimate reward of sitting with frustration, boredom, and writer's block.

as many specs as glitter, dandruff, toe hair, eye lash, letters, pips, crust, dot, full stop

The walls bear witness to the world, the arguments, kindnesses, inner lives, conflicts, everyday routines, thinking of the "negative space" of the wall turns something empty or uncertain into something creative, a place to collect experiences.

Seemingly fleeting moments shift a person's outlook, a conversation, a childhood box, a new book, a visit, staring at a wall

I think of the etymology of a wall

They hand out sickness on the wall with their dotted lines and placid rhyming.

I collect the diseases like dolls at a garden party, all sprightly and still.

That in that space of time, I would have exchanged one country for another, and the wall has still not moved, what kind of a high is this comfort?

I clear out candle wax and semolina and fold the tape measure discreetly into a clean circle like a broken nail.

When I walk out onto the road the rows of interior walls throw up their exterior bedfellows onto the street, the bins the cans the back gardens the conservatories the deep breaths.

The child raises a question down a jaded hall and the poets run to catch its echo.

Some people really are obsessed with etymology. The origin of you. You'll have dry skin because they all do. Your index finger will grow to tap instead of point because of mischief. You won't stand a chance with that house-shaped lobe.

I had a dream about a town named after Mildred, that woke me up with such sweetness you could almost touch it. It was like golden time at school where I would classify my dreams on a sheet of paper. Multicolour cans of flavoured beans snowdrops small houses fizzy drinks all the good weather.

So it really feels apolitical when she hands me a snot pink raspberry muffin whilst I wait.

Opposite me the bloom is off the rose for that woman's crust on her toe, as she weaves off her heart shape red glamour slipper her ballerina foot makes a cracking twirl.

Like a dollhouse version of a person   a copy   a trace without a front or back.

THE POETIC EXPERIENCE

Blending the personal, creative, and critical allows for a non-linear approach to guidance and thus an interconnected method of addressing urban "livability." Language is fluid and fluctuating and as writer Melissa Febos attests about her own life writing, writing about the self is not merely a process of "navel gazing" nor writing inwards, rather writing about yourself expands out to writing about the world.[13] In the context of writing about city life, one can experience what this article's author calls "poetic experiences" whereby a poem is a "guided form" in the city, a form of writing that due to its experimental or often hybrid nature creates a bridge between the self, different disciplines, and spaces. A poetic experience might involve talking to someone new, noticing something different, or as connected to Sophie Woodward's sociological research on clutter and unused domestic objects,[14] centering something left to the side.

If looking inwards might equal looking outwards, then looking outwards is also looking inwards, as experimental poetic techniques can demonstrate. For example, poet Faye Latham's work in blurring out and drawing over parts of the antiquated "British Mountaineering" guide and incorporating her own experiences of hiking and rural landscapes shows a playful approach to merging an external and internal world.[15] In an urban context, a " poetic experience" might be taking forms that exist within a city, such as medical pamphlets, maps, university textbooks, and as the article's author did with Manchester-based participants, making poems out of existing texts to extract different meanings.

A "poetic experience" signals a break from daily life, distrusting what is expected of the "typical" urban experience. As 19th century philosopher Walter Benjamin declares in his concept of the

"poetized," in relation to creating art, truth exists within a poem itself and is constructed through the writing of a poem, as a poem can demonstrate the elasticity and flexibility of memory, fantasy, and subconscious thought.[16]

An interdisciplinary approach to the city, where one accounts for "poetic experiences" involves shaping a city through acknowledging the relationship between seemingly isolated spaces, institutions, and groups. As researcher Felicity Callard argues, interdisciplinary research is "fuzzy" work, where emotions and methodologies interconnect, and academic research might involve recounting subconscious moments, daydreams, and illness.[17]

Using abstract or unusual terminology when approaching urban discourse and pedagogy can act as an alternative methodology to viewing and reshaping the city, to account for seemingly "atypical" minds. For example, in a workshop run by this article's author in Manchester, participants engaged in a "scrunchy" urban exercise, scrunching up pieces of paper with noted dreams and ideals for the city they live in, which lead to thinking about the idea of "scrunchy" experiences in a city, experiences that are hard to unravel, or half-remembered. Abstract terms rooted in everyday experiences can help to zoom in on moments that are hidden by the frenzy of urban life, such as Philip Gross's poetry collection "Scratch City," that deals with moments "scratched" under the surface, addressing what can be gained from analyzing litter, moments brushed under the carpet, or intimate conversations.[18]

As Walter Benjamin considers in his analysis of urban life and 19th century poetics, one experienced "shocks" in the city, as urban environments gave way to more jostled and electrifying interruptions to time and space because of exposure to elements of fear and surprise.[19] A way of remedying these shocks, Benjamin argued, was to explore the city from a different perspective, noticing space from the point of view of one colour, a sound, or a child's perspective.[20] This paper's author explored this concept through self-guided tours, where workshop participants were encouraged to wander along one small street in Manchester and note down what they heard or felt. This creative approach to guidance in the city allowed for hidden moments or missed connections, such as between workers and students, or sky and ground, to come to the surface.

THE LANGUAGE OF BUILDING

Developing upon the use of abstract terminology to talk about city life, a creative approach to reimagining cities might involve modelling the city. Bradt approaches modelling as going beyond creating a replica or miniature model of a space or building, but rather as a starting point to imagining or responding to urban design.[21] In a sense, modeling is a guiding process, guiding the artist or audience into seeing a representation of a space or environment, and this can be done through different materials and in ways that may not visually imitate the space, but produce a feeling connected to the space.

When thinking about city design and how poetry is imbedded in the city, it helps to develop a language of design or language of building. As we might think about mining or extracting or constructing language, one might think about the relationships of scale between a poem or a book and a model of a city or a city itself. These connections can open up streams of imagination in the city because thought is not filtered purely through concrete means but through understanding how a poem might be built up and developed in the way that a city might be. As Eisendrath draws on in her creative-critical book on literary theory and the concept of reading, "Gallery of clouds," the reader is encouraged to move through chapters as fluidly as one might cloud gaze.[22] One can think about how clouds might sit above a sky, in a similar way to how a cityscape might inform the contents and structure of a poem.

Guiding the reader through a poem, much like guiding someone through a city, is a practice in imagining a world or experience that might not exist. Building upon language or modelling and

designing a city becomes a practice in building space, as well as building in silence and time to think. Cultural theorist Sara Ahmed uses the language of building to conceptually guide readers through developing a feminist consciousness with her concept of a feminist "killjoy survival kit," a toolkit consisting of favorite books, collected objects, and everyday feelings.[23] Through connecting the scale of one's experiences to the scale of a text or that of a city, a thought process runs simultaneously to designing a livable space, appreciating the interdisciplinary connections between creative, critical, lived, and physical contexts.

One can place the language of building in a domestic context, thinking about enclosure and exposure in urban space. Siltanen states when discussing the poet Lyn Hejinian's work on happiness, the everyday, and chance, "just as the everyday can fall out unexpectedly well or badly, so the idiomatic language of the everyday can seem perfectly ordinary or unexpectedly strange."[24] Thinking about this thin line between chance and intention, the everyday and the extraordinary, one can approach building a city as building a poem, where moments of "unintention" occur, and domestic and urban space morph into one another.

Thinking about the walls of the city or the walls of a home encourages alternative or poetic forms of guidance, where one might acknowledge a concrete yet often invisible part of a built environment. Putting this into practice, the article's author carried out a poetry project as part of a residency in a school near Manchester, called "The Writing's on the Wall," where pupils were encouraged to think about how walls showcase identity, hold dreams, cross temporal and spatial zones, and collect conversations. As theorist Katherine Shonfield expresses, walls can represent remnants of forgotten histories, engaging in one's sense of place and removal.[25] The walls of a city might represent the pages of a book, a structure or style that holds up a book or word might become a plan or guide to one's way of navigating the city, collecting the multitude of experiences gathered in urban spaces. When thinking about how a poem can act as a house belonging to a neighborhood, one part of a city, designing a poem or city is seen as a process not in isolation, where creation involves bumping into influences, interdisciplinary canons, and overlooked experiences.

Thinking about the language of building or scale allows for the merging of a sense of physicality and practicality with emotion and bodily sensation. As poet Helen Mort expresses, "Poem as dwelling place, a space I could live outside my body. But I am never really outside my body."[26] A bodily approach to writing that connects poem to body, to structure to space is important in thinking about how to design space with embodied, imagined, and subconscious experiences in mind.

CONCLUSION

This article has explored the concept of guidance in an urban context, thinking about how the environment of the city, with constantly intertwining experiences between people and place, is expressed and exposed through a poetic reading and poetic appreciation of urban landscapes. The article has connected life writing and critical theory to an exploration of abstract, representative, and imagined language, to offer an approach to subversive guidance, with the intention of revealing experiences in the city that might be unrecognized or placed in isolation. The essay has been largely conceptual rather than focusing on specific case studies, to indicate instead how the process of writing and reading poetry might be seen to "hover" above the cityscape. The city's individuals might not need to engage in poetic theory and practice to have "poetic experiences" or reap the benefits of arts-based approaches in the city, and poetry influences the space without always directly engaging with it. Poetry is itself as a city experience might be, transient and hard to define, and it aids in reimagining and modelling the city, blending the physical, social, and individual.

NOTES

[1] "Cambridge Dictionary," Cambridge University Press and Assessment, accessed July 14, 2023, https://dictionary.cambridge.org/dictionary/english/guidance.

[2] Anne Carson, "Stillness," Critical Inquiry 48 (2021): 15.

[3] Sara Ahmed, *What's the Use? On the Uses of Use* (Durham: Duke University Press, 2019), 120.

[4] Howard Eiland and Michael William Jennings, *Walter Benjamin: A Critical Life* (Massachusetts: The Belknap Press of Harvard University Press, 2014), 51.

[5] Ahmed, *What's the Use*, 100.

[6] Roger Robinson, *A Portable Paradise* (Leeds: Peepal Tree Press, 2019), 3.

[7] Natalie Pollard, *Fugitive Pieces: Poetry, Publishing and Visual Culture from Late Modernism to the Twenty-first Century* (Oxford: Oxford University Press, 2020), 32.

[8] Christopher Bardt, *Material and Mind* (Massachusetts: The MIT Press, 2019), 20.

[9] Bardt, 31.

[10] Carson, *Stillness,* 18.

[11] Anita Slater, "This is not a Guide: A Poetic Reimagining of Guidance in the City" (paper presented at the Livable Cities Conference, New York, June 14-16, 2023).

[12] Carson, *Stillness*, 16.

[13] Melissa Febos, *Body Work: The Radical Power of Personal Narrative* (Manchester: Manchester University Press, 2022), 34.

[14] Sophie Woodward, "Clutter in domestic spaces: Material vibrancy, and competing moralities," The Sociological Review 69 (2021): 1214.

[15] Faye Latham, *British Mountaineers* (Yorkshire: Little Peak Press, 2023), 27.

[16] Eiland and Jennings, *Walter Benjamin*, 72.

[17] Felicity Callard and Des Fitzgerald, Rethinking Interdisciplinarity across the Social Sciences and Neurosciences (London: Palgrave Macmillan, 2015), 2.

[18] Philip Gross, *Scratch City* (London: Faber and Faber, 1995), 7.

[19] Richard Wolin, *Walter Benjamin, an Aesthetic of Redemption* (California: University of California Press, 1994), 227.

[20] Wolin, 200.

[21] Bardt, *Material and Mind,* 275.

[22] Rachel Eisendrath, *Gallery of Clouds* (New York: New York Review Books, 2021), 52.

[23] Sara Ahmed, *Living a Feminist Life* (Durham: Duke University Press, 2017), 235.

[24] Elina Siltanen, *Experimentalism as Reciprocal Communication in Contemporary American Poetry: John Ashbery, Lyn Hejinian, Ron Silliman* (Amsterdam: John Benjamins Publishing Company, 2015), 183.

[25] Katherine Shonfield, *Walls Have Feelings: Architecture, Film and the City* (London: Routledge, 2003), 71.

[26] Helen Mort and Victoria Foster, "You do not Have to be Good," Poetry Review, October 12, 2022.

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A SHARING-BASED CATEGORIZATION OF HOUSING OPTIONS FOR DIVERSIFYING CITIES

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INTRODUCTION

The population in urban areas is growing rapidly.[1] Cities are becoming more densely inhabited, which puts enormous pressure on the housing market. Additionally, the housing needs of people in the housing market are evolving due to several societal shifts making the growing city population more diverse. A first societal shift is increased longevity caused by declining mortality among older adults in higher-income countries.[2] Secondly, family structures are changing as well. There is a decrease in household sizes due to, among others, fewer children being born.[3] Projections suspect an even further reduction in the future. Thus, the amount of one and two-person households is rising.[4] Lastly, urban areas are welcoming more diverse inhabitants. Increased migration from rural areas or from abroad causes the accumulation of many different cultures in cities, each with its traditions and habits.[5] Consequently, the housing stock is inadequately equipped to accommodate this heterogeneity.

In this challenging context, the HOUSE-research project was initiated, a collaboration between Hasselt University and Vrije Universiteit Brussels, both located in Belgium. The project's research objective is to study the effects of the residential environment on the subjective well-being of older adults in Flanders, specifically how innovative housing (concepts and characteristics) could contribute. From architecture and social sciences, the HOUSE-research project emphasizes the need for alternative housing options.

Among many other housing options, cohousing could be a valuable alternative. This is a form of housing with common spaces and shared facilities, as Vestbro described.[6] Many variations of cohousing exist, such as collective housing, cooperative housing, collaborative housing, and ecovillages.[7] Studies on the different types of cohousing show exciting advantages that could benefit cities' societal shifts. Young adults, for instance, could experience the financial advantages of sharing a flat.[8] Cohousing can enhance social and emotional interaction among residents to counteract social isolation.[9] For older adults, cohousing could benefit their social respect, preventing loneliness and isolation and providing opportunities for distributing care tasks and daily chores.[10] Cohousing can reduce the amount of private space per unit in exchange for communal spaces, addressing densification concerns.

OBJECTIVE

Although cohousing benefits the housing challenges caused by societal changes in cities, specific difficulties arise. In academic and professional literature, cohousing options are often described with a specific term, changing over time and from region to region, which does not benefit the discussions on this typology, especially not when introducing cohousing to the general public. Unclear information about cohousing typologies contributes to maintaining existing barriers to cohousing. Therefore, the goal of this paper is to (1) sketch barriers of cohousing that underscore the need for a sharing-based housing categorization; (2) analyze existing sharing-based housing categorizations on their strengths and weaknesses with regards to the cohousing discussions; (3) display cohousing projects, to validate the application of the existing categorizations in practice to emphasize these strengths and weaknesses.

BARRIERS TO COHOUSING

Flanders (Belgium), the scope of the HOUSE-research project, is experiencing the same societal shifts and the resulting pressure on the housing market, as described in the introduction. When analyzing the housing stock in Flanders, concerns arise about answering the diversified housing needs. Flanders has a landscape characterized by the dispersal of large single-family houses in low-density areas and ribbon development, putting increasing pressure on nature and mobility.[11] Given the growing housing need, this monofunctional sprawl does not benefit the need for densification. The current housing stock is not sufficiently adapted to accommodate the needs and wishes of the continuously diversifying population. 74% of people in Flanders live in single-family houses.[12] The mainstream of the Flemish population continues to be attached to this ideal due to ongoing governmental encouragement in the past with low-cost loans and promotion of this typology.[13] These large single-family houses are not adapted to shrinking family sizes, with an under-crowded housing stock as an effect. Overall, Flemish older adults wish to age in place in the large single-family houses they own, even if these houses ask for loads of maintenance and thus implying associated costs.[14]

Despite the previous section exposing that Flanders requires alternative housing options, such as cohousing, barriers keep the majority from this idea of innovation. The first barrier is the perceived limited relevance of cohousing for many people in Flanders, justified or rationalized in terms of assumptions about "normal" housing careers. Strong cultural scripts exist for cohousing for young adults and students, but still much less so for families with children or rural communities.[15] In Flanders, people tend to hold on to the idea of a classical housing ladder,[16] in which cohousing does not always fit the upward movement. A second barrier, and relatedly, an essential factor in people's reservations about cohousing may be the strong norm of homeownership, combined with the dominance of a (semi-)detached housing style. Combined with Flanders being a homeowner society, with 71.6% homeowners, and those mentioned above, past governmental encouragements have contributed heavily to this situation.[17] Thirdly, many people have concerns regarding privacy within cohousing initiatives. There is much nescience on what is private and shared in cohousing. With many assumptions about sacrificing privacy.[18]

How, then, will we participate in the diffusion of cohousing in a context where still 74% live in a single-family house? For this, we will look at Rogers' diffusion of innovation theory[19] (see Figure 1). In Flanders, we know today that a small group of innovators is already living in some form of cohousing, but the majority is not.[20] Therefore, Williams suggested some strategies based on Rogers' theory, with higher chances of innovations being diffused. Diffusion is the stage at which a product or process becomes more widely available within a population. For instance, when the relative advantage of the innovation is higher than familiar tools or technologies, it is easier to adopt the innovation. Secondly, innovations get more easily diffused when there is a higher degree of compatibility with

existing cultural values, experiences, and needs and when innovations are simple in their application and are visibly present in society,[21] hence the need for a sharing-based housing categorization to make cohousing more visible and clarify ambiguities.
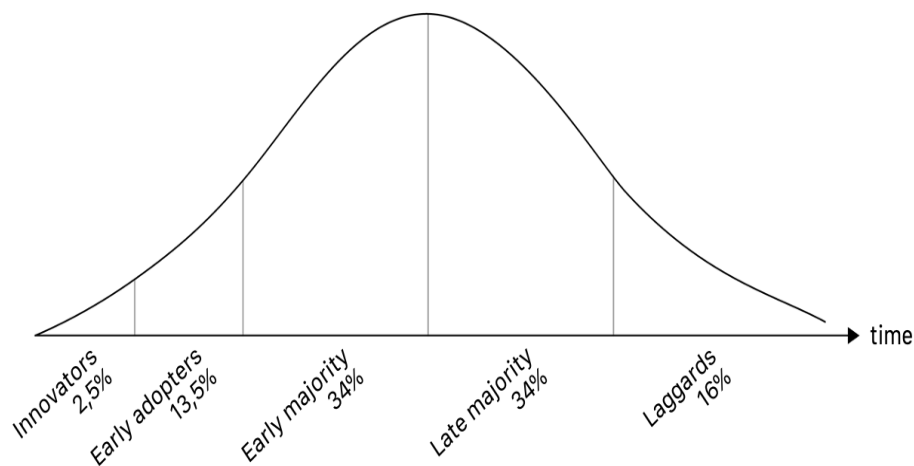

Figure 1. 'Diffusion of Innovation Theory' by Rogers (1983).

CATEGORIZATION

When categorizing housing, many approaches are available. Residential buildings can be organized based on the number of units, the size, or the construction year. Neufert, for instance, categorizes houses based on spatial organization, resulting in typologies such as semi-detached housing, linked housing, and housing with courtyard gardens.[22] Leupen and Mooij also take a spatial approach, discussing the number of zones in a dwelling.[23] Sharing is an interesting organizing method when incorporating cohousing in a housing categorization. Concerning the HOUSE-research project, a sharing-based approach contributes to the objective of future research on the influence of shared space in housing on the well-being of older adults.

Following, we have selected three housing categorizations that have the potential to support our future sharing-based housing categorization. In our search for categorization, sharing as a means of organizing was paramount. Much research on the sharing economy popped up during our search, which caused us to limit ourselves to architectural research discussing housing. This paper analyzes the existing categorization based on their application for the future research objective of the HOUSE-research project, discussing their strengths and weaknesses.

Categorization by Benko et al. (2020)

The first categorization by Benko et al. (see Table 1) is complete when it comes to implementing all types of cohousing. Sharing space is inherent to all types included. Thus, the difference between the projects is made in their shared creation, activities, and tenure. The shared creation discusses the residents' involvement in the cohousing creation process. The shared activities are the activities organized by the inhabitants. The shared tenure includes the type of shared ownership in the project. The paper states that shared creation, activities, and tenure must all be at least at present in a certain amount.[24] Our research deems this unnecessary since we are specifically looking at the influence of shared space in housing on well-being, notwithstanding these three principles' influence on this matter. From an architect's perspective, our future categorization focuses on what is designable: shared spaces. The designer's role in this matter is critical in the definition of cohousing as a form of

housing with common spaces and shared facilities. When addressing the barriers to cohousing, this framework can provide valuable ownership information but less on the shared and private spaces.

Co-housing sub-terms	"shared space"	shared creation	shared activities	shared tenure
Commune	x	x	x	x
Cohousing	x	x	x	x
Collaborative housing	x	x	x	
Cooperative housing	x	x	x	
Community-led housing	x	x		x
Communal housing	x		x	
Collective living/Co-living	x		x	
Collective housing	x		x	
Collective self-help housing	x	x		
Collective self-build housing	x	x		
Condominium	x			x

Table 1. 'Characteristic categories of social sharing in co-housing sub-terms – in the order of the sharing level' the categorization by Benkő et al. (2020).

Categorization by Van de Houte et al. (2015)

The second categorization of Van den Houte et al. (see Table 2) organizes different housing types, starting from the minimum private and shared spaces. An essential factor in this categorization is the absence of a private living space and the presence of a shared living space. Van den Houte et al. defines living spaces as spaces 'where people spend time', including a kitchen, a dining room, a living room, and a bedroom. A bathroom, circulation, parking, and storage spaces are not considered living spaces.[25] The categorization of Van den Houte et al. addresses the privacy concerns regarding cohousing, one of the barriers to cohousing. For future research purposes, this scheme provides a good fit for researching the impact of shared space in housing on subjective well-being; therefore, we will use this in the next part, in which we further emphasize the importance of a sharing-based housing categorization. However, a few gaps are present in the categorization of Van den Houte et al.

Minimum private spaces	Minimum shared spaces
I. Apartment, two-family house, duo-living, kangaroo living	
all living spaces (living room, kitchen and dining room, bedroom(s)), bathroom	entrance, staircase, eventual garage or parking space, bicycle and pram storage, salvage
II. Coliving	
all living spaces (living room, kitchen and dining room, bedroom(s)), bathroom	See I. + garden, laundry room
III. Co-housing	
all living spaces (living room, kitchen and dining room, bedroom(s)), bathroom	See II. + kitchen and dining room
IV. Residential group, community house, landlady system	
bedrooms	See III. + living room, bathroom
V. Barracks, boarding school, commune, community	
none	See IV. + bedrooms

Table 2. 'Categories of communal housing according to shared space (Flanders)' the translated categorization by Van den Houte et al. (2015).

Design-game by Pirinen and Trevo (2020)

Pirinen and Trevo developed a design game that serves as our third means of categorization (see Figure 2). The game was based on two dimensions. The first dimension was the levels of the built environment on which shared spaces can be located. The second dimension of the game board was the division between private or communal use of shared space. Spaces can be shared to allow several people or households to simultaneously use them or privately by individual households, for example, by reserving a shift. Their study also includes bundles of space that could be shared (see Figure 3).[26] Pirinen and Trevo also add the multitude of functions shared spaces can have, ranging further than the ones described by Van den Houte et al.
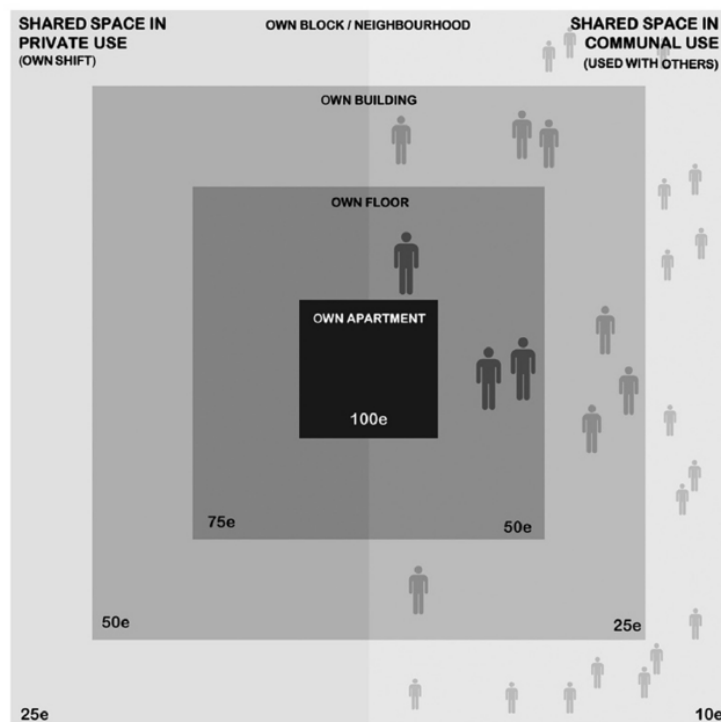

Figure 2. 'The game board based on two key dimensions and prices for spaces on different levels' the game-design by Pirinen and Trevo (2020).
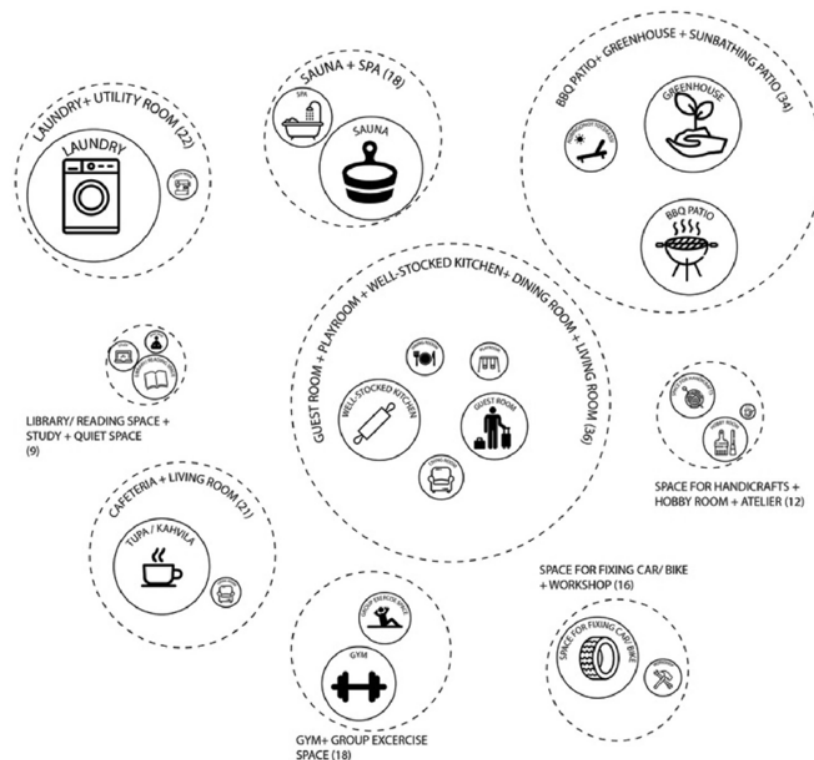
Figure 3. 'Space bundles resulting from the game material' the game-design by Pirinen and Trevo (2020).

APPLICATION

To clarify the need for a sharing-based housing categorization and the gaps in current categorizations, we collected over 125 housing projects with second-year architecture and interior architecture students, mapping their sharing practices. The students were divided into three groups, each with a specific region from which to collect projects: Belgium and The Netherlands, Western Europe, and outside Western Europe. In relation to the HOUSE-research project, the students were commissioned to collect housing projects for older adults in which they lived independently. Next, the students were asked to document the projects in a template with photographs and floorplans, discussing each project's private spaces and shared spaces. In the meantime, the list was extended by the researchers of HOUSE with significant projects over the past 25 years collected from professional Belgian literature and websites on architecture. This paper will present four of these projects. We will use the above-presented categorization by Van den Houte et al. to highlight their resemblances and differences.

The first project is Scarwafa cohousing by Krft, built in 2016 in the Netherlands. The architect describes it as a small-scale cohousing project of 3 befriended young families who acquired three neighboring plots in Amsterdam at the height of the last financial crisis. From the start, collectivity, and simplicity were the guiding motives. The thin budgets demanded conservativeness in form and materialization. By developing a coherent, collective architectural language, there was effectiveness in basic detailing and cost savings in implementation. With these basic details, three individualized homes with different spatiality have been designed to fit individual needs.[27] The project's layout shows three individual four-story homes with private living spaces and a private bathroom. The shared spaces are a garage and bike storage on the ground floor; and a guest room with a kitchenette

and a bathroom on the third floor. According to the categorization of Van den Houte et al. (see Table 2), Scarwafa cohousing belongs to group I.

Bijgaardehof cohousing is the second project, designed by Bogdan & Van Broeck. The cohousing is located in Belgium and was completed in 2022. It is described as the following: an abandoned factory site into a flourishing community including three cohousing groups with 59 dwellings, a neighborhood health center, a circuit of collective indoor and outdoor spaces, and a workshop with a view of Bijgaardepark. Bijgaardehof has an ambitious, mixed program organized around encounters and interactions.[28] Many shared spaces are available in cohousing Bijgaardehof, including a shared kitchen and shared living spaces, collective storage spaces, bike storage, and collective outdoor spaces. There are shared bathrooms, other than collective restrooms adjacent to the shared spaces. The individual units are self-sufficient, with private living spaces and bathrooms. In the categorization of Van den Houte et al. (see Table 2), this project thus belongs to group III. What is not discussed in the categorization in Table 2 are the spaces used by the neighborhood, this is discussed in Pirinen and Trevo's design-game (see Figure 2.)

The senior cohousing project from Arqbag, located in Spain, shows us an even different layout and division of private and shared spaces. The spaces are organized according to each use, specific to the degree of collectivization required at each moment. Individual, couple, collective, and even neighborhood spaces were incorporated. In order to solve the scale transition from warehouse to cohousing, the multiplicity of use spaces, and the gradients of privacy, the project proposes the insertion of a central equipped block. This new element permits reconfiguring the pre-existing open space into multiple subspaces, which are distributed in plan and section.[29] Also named a cohousing project, this project has a very high level of shared spaces compared to the two previous projects and few private rooms. The private spaces in this project consist of a private bedroom accompanied by a private bathroom, while other spaces are shared. Due to this, this project belongs to group IV of the categorization of Van den Houte et al. (see Table 2).

The last project is the project Future House by Wim Goes Architectuur. Completed in 2019, this project in Gent is part of a larger group of houses on a shared piece of land.[30] The project consists of two apartments with private living spaces and a bathroom. Below the two apartments, a shared yoga space and wellness area are located. According to the categorization of Van den Houte et al. (see Table 2), this project belongs to group II. However, no distinguishing is made by the presence of the yoga space and wellness area, which are areas described in the bundles by Pirinen and Trevo (see Figure 3).

CONCLUSION

Much exciting research concerning cohousing is ongoing; moreover, unclarity in research and the field of practice still needs to be addressed. Attempts to categorize cohousing have been made and are already a step in the right direction. The application of the above categorization shows their relevance by distinguishing projects described with the same terminologies in different groups. However, the application also addresses the gaps in the existing categorizations and, thus, the need for a more comprehensive sharing-based housing categorization. A categorization can generate knowledge and familiarity with cohousing, thus, making the innovation visible. Subsequently, barriers to cohousing can be tackled to incorporate the housing form as a valuable player in the housing market of diversifying cities. A categorization can also be beneficial for future research purposes. The spatial dimension, which a designer can influence, contributes to the social dimension in cohousing projects, which is a valuable interconnection. In the following steps of the HOUSE-research project, a more comprehensive version of a sharing-based housing categorization will be developed to analyze the influence of shared space on the subjective well-being of dwellers, specifically older adults.

Lastly, this paper would like to address a few limitations. This research's first limitation is that the literature review on existing housing categorizations is not exhaustive or systematically triangulated. A second limitation is that the project collection by students and the researchers only maps projects for which information was fully available online. Since the students were asked to collect plans and photographs, the projects for which this was not available were excluded from further research. This approach implies that more organically grown cohousing initiatives or smaller-scale projects could not be selected. Future research could focus on this specific category of cohousing projects.

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DIGITAL TRANSFORMATION EMPOWERS FAIR, DIVERSE, AND INCLUSIVE URBAN RENEWAL: A CASE STUDY OF THE SANLITUN NEIGHBORHOOD IN BEIJING, CHNIA

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INTRODUCTION

In today's expansive market landscape, driven by government initiatives and underlying market dynamics, the call for more advanced technological support has grown. Beijing has taken steps to establish itself as a benchmark city for the digital economy,[1] aiming to unlock the latent potential of data elements, propel the construction of a robust digital nation, and accelerate the development of the digital economy, digital society, and digital governance. This overarching shift towards digitization is set to reshape production methods, lifestyles, and modes of governance, while also fast-track the growth of the data element market and amplifying the value of social data resources. This initiative also emphasizes the importance of integrating and safeguarding data resources in preparation for the digital age, covering policies, technologies, and beyond.[2]

At present, China, and indeed the entire world, are undergoing tremendous changes. As one of the greatest accomplishments in the history of human civilization, cities have long played a central role as essential platforms and organizational hubs, recording the microcosm of civilization in different eras.[3] Against the backdrop of digital transformation, the flow of production factors, spatial production, and urban space are no longer limited to physical and social space. The emergence of digital technology and the development of digital transformation of cities are yielding a vast expanse of "digital space".[4] Cities are extending from physical space based on body perception to digital space based on virtual sharing.

BACKGROUND AND DEVELOPMENT OF URBAN DIGITAL TRANSFORMATION

Urban digital transformation refers to the comprehensive changes and innovations[5] in the economic, social and management[6] aspects of cities, driven by the integration of digital technologies. Digital transformation is an inevitable trend in today's urban development, which not only affects the economic development and social change of cities but also puts forward new requirements for urban governance[7] and services. Exploring its impact on urban spaces and the application of digital technology in urban development is of great significance.

Impact of Digital Transformation on Urban Space

With the continuous advancement of digital technology, the evolution and arrangement of urban spaces are undergoing profound changes. Digital transformation propels cities beyond the confines of traditional physical realms into the realm of digital space. Consequently, urban life is becoming progressively reliant on the support provided by digital technology and Internet connectivity.[8] The integration of digital technology brings new momentum to urban economic development.[9] Moreover, the ascent of the digital economy will propel industrial upgrading and innovation, thereby fostering economic growth.[10] This transformative process will optimize urban management and public services. A data-driven urban governance model will heighten the efficiency of urban management and bolster the accuracy of decision-making.[11] Simultaneously, residents' quality of life will see significant enhancement, facilitated by intelligent living facilities and convenient digital services, that contribute to an improved overall living experience. The digital metamorphosis of cities will amplify citizens' sense of participation and accessibility. Open innovation platforms and digital services will elevate citizens' engagement with urban development.[12]

Integration of Digital Technology in Urban Development

The application of digital technology in urban development has become increasingly widespread, covering all aspects of urban management. For example, intelligent transportation systems can predict traffic congestion and optimize traffic routes to improve efficiency. Intelligent urban systems can efficiently allocate urban resources and enact intelligent management, thus elevating the quality and competitiveness of cities. Moreover, digital transformation facilitates the digital modelling and simulation[13] of cities, refining their spatial arrangement and design. The deployment of digital technologies has revolutionized urban operational paradigms and unlocked novel avenues for sustainable urban development.

IMPORTANCE OF FACTOR MOBILITY AND SPATIAL PRODUCTION

The significance of factor mobility and spatial production[14] is assuming a progressively more prominent role in the wave of cities' digital transformation. Both factors play a pivotal role in the economic[15] and societal advancement of cities,[16] with far-reaching implications extending to cities' competitiveness, sustainability, and overall developmental potential.[17] The digital transformation of cities introduces fresh prospects and challenges to the flux of production factors and spatial production, concurrently furnishing a broader stage for urban innovation and enhancement.

Impact of Urban Digital Transformation on Factor Mobility

As cities undergo digital transformation, the mobility and distribution of production factors gain enhanced flexibility and efficiency. The widespread integration of digital technologies has ushered in novel prospects for urban economic evolution. For instance, the augmented flow of information greatly expedites the swift transmission and sharing of data. The propulsion of production factors is hastened through the deployment of Internet of Things (IoT) technology, cloud computing, and big data analytics.[18] The streamlined information flow augments market transparency, curbs transaction costs stemming from information asymmetry, and elevates resource allocation efficiency. Enterprises and individuals can now access and transmit information more effortlessly, thereby facilitating the flow and distribution of production factors like labor, capital, and land within urban contexts. Digital technology ensures ease and security in capital movement. Financial technology tools such as digital payments and e-banking have streamlined cross-border capital movement and investment convenience.[19] The digital transformation empowers capital to be dynamically allocated across diverse industries and regions, in turn fostering the harmonized growth of urban economies.

Evolving Spatial Production Patterns Amid Digital Transformation

As the penetration of digital transformation deepens within cities, the landscape of spatial production[20] is also experiencing shifts. Traditionally, spatial production in urban areas has been predominantly influenced by physical and societal variables.[21] Yet, the assimilation of digital technologies has engendered more intelligent and adaptable organization and planning of urban spaces. These technologies have not only revolutionized urban infrastructure sectors like transportation, communication, and energy management but have also capacitated the optimization of cities' spatial arrangement and design. For instance, digital transformation has imbued urban planning and design with greater intelligence and personalization.[22] The utilization of big data analytics and artificial intelligence furnishes real-time data and user behavior insights, enabling urban planners to gain a more precise understanding of residents' requisites and concerns. Consequently, they can devise more pertinent urban planning solutions.[23] The impetus of digital transformation stimulates innovation in urban space production, rendering urban renewal more inclusive, diverse, and responsive to forthcoming demands.

Trends and Design Strategies for Digital Transformation in Beijing's Sanlitun Business District

Positioned as a significant business hub[24] within Beijing's Chaoyang District, the Sanlitun Business District has long served as an international consumer hub and global business landmark, both within China and across the world. With the advent of the city's digital transformation wave, the Beijing Municipal Government recognized the paramount significance of digital transformation in propelling the growth and competitiveness of this business district. In the context of digital transformation, the Sanlitun commercial district's journey through digital metamorphosis is epitomized by the augmented public attributes within spaces designated for consumption,[25] the transition towards spatial textures characterized by small-scale openness,[26] the reshaping of consumption scenarios through the infusion of digital technology,[27] and the adoption of a multi-stakeholder spatial operational model.[28] To better address this evolving trend, an endeavor has been launched to seamlessly integrate the traditional physical, social, and digital realms. This pursuit involves the exploration of a design strategy that synergizes physical, social, and digital spaces, striving to deliver impartial, diversified, and comprehensive commercial services and community experiences.

Trends of Digital Transformation in Sanlitun Business District

Firstly, consumer spaces increasingly emphasize public attributes. The development of digital technology and experience economy makes consumers' demand for space no longer limited to simple transactions, but more focused on the public function and social experience of space. Secondly, the spatial texture of commercial neighborhoods is changing from large-scale closure to small-scale openness. With the development of digital technology, consumers have higher requirements for diversified spatial experiences, and commercial districts are gradually transforming into small-scale open spaces, providing more diversified and convenient path options and outdoor experiences. Third, digital technology is reshaping the consumption scene of commercial districts. The popularization of the Internet and mobile technology has made the online and offline consumption experience more and more integrated. Finally, the mode of operation of consumer space has transformed from state-run to single-agent operation to multi-agent operation. Such an operation model will better consider the needs of multiple parties and satisfy the interests of more groups.

Exploring Integrated Design Strategies for Physical-Social-Digital Spaces

To better address the challenges and opportunities presented by the city's digital transformation, this article explores an integrated design strategy for physical-social-digital spaces in Sanlitun's commercial district.[29] This approach seamlessly combines traditional physical, social, and digital spaces to offer more intelligent and efficient business services and community experiences. The commercial district takes into account the incorporation of digital technology within its design and planning, integrating intelligence and digitalization throughout all aspects of its functions.[30] Concurrently, the district actively collaborates with the community, pooling resources to facilitate digital transformation. This integrated design strategy introduces a fresh direction for realizing sustainable development in commercial districts through equity, diversity, and inclusivity in urban renewal,[31] enabling these districts to effectively adapt to market demands and shifts in the digital age. Considering the evolving digital transformation trend within Sanlitun's commercial district, the significance of digital technology in the transformation process is underscored through the lens of factor flow and spatial production. Moreover, the concepts of "Blind Box Shops" and "Tidal Streets" are introduced. The article presents design strategies encompassing "Blind Box Shops," "Tidal Streets," "Wondrous Markets," and "Symbiotic Neighborhoods," each corresponding to points, lines, surfaces, and domains, respectively. These four design strategies aim to enhance the district's functionality and appeal in response to the digital era's changes and demands.

Blind Box Shops

Conventional shopping districts have historically revolved around in-person shopping within physical spaces, with consumers navigating functional zones for their purchasing endeavors. In tandem with the ongoing advancement of online trading platforms, physical shopping has progressively adopted an online approach centered on keyword-based searches for products. In the contemporary landscape, the emergence of digital technologies like Virtual Reality (VR) and Augmented Reality (AR)[32] is engendering a transformation in the realm of offline transactions.[33] Consumer preferences are shifting from mere keyword-based searches to a desire for multi-sensory experiences. Concurrently, the demand for superior quality within physical spaces is escalating among residents. Traditional methodologies of crafting physical spaces now encounter challenges in catering to the diverse spectrum of needs.

Empowered by digital technology, the "Blind Box Shop" (Figure 1) is conceived at the individual point level, strategically allocating uncertain functions within a compact space to elevate space quality, catering to a spectrum of user requirements. This innovative concept intertwines the Taikoo Li shopping district with the Sanli neighborhood, segregating it into two segments: neighborhood blind boxes and commercial blind boxes (Figure 2). The Community Blind Boxes (inter-building community blind boxes and street-side community blind boxes) primarily cater to residents' daily necessities. Concurrently, Commercial Blind Boxes (corner commercial blind boxes, under-building commercial blind boxes) are designed to satiate customers' craving for experiential consumption. Through the seamless amalgamation of digital technology and user preferences, these blind boxes furnish consumers and residents with custom-designed, exclusive spaces—enabling a multi-sensory consumption experience and addressing individualized needs.

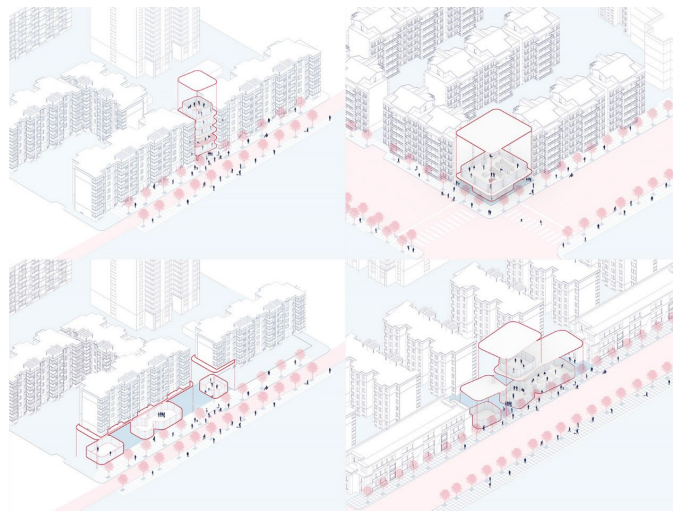*Figure 1. Artist's Rendering of a Blind Box Shop*

Figure 2. Placement Guidelines for Community Blind Boxes and Commercial Blind Boxes

Tidal Streets

Traditional streets, characterized by their fixed physical layout prioritizing vehicular traffic, often limit the scope for vibrant activities.[34] This focus on accommodating cars has inadvertently neglected the potential for lively pedestrian experiences [35] and the street's inherent vitality, [36] resulting in traditional streets appearing devoid of life. [37] Leveraging a pedestrian-centric approach, [38] the integration of digital technology aims to establish a harmonious balance between people and vehicles (Figure 3).
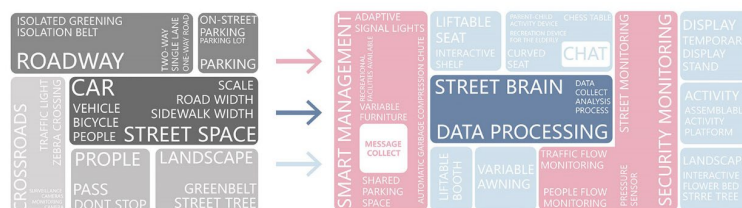

Figure 3. Digitally Empowered Transformation of Tidal Streets

The line layer gives rise to "Tidal Streets," a metamorphosis from the conventional rigid street layout. It introduces adaptable modules and leverages digital technologies like sensor technology, embedded systems, cloud services, face recognition, and voice recognition, to dynamically reshape the street based on temporal fluctuations, pedestrian influx, and other variables.[39] Concurrently, street usage generates data on vehicular and pedestrian movement, which is then transformed into insights encompassing time, space, and flow. Comprehensive processing of this information culminates in the formulation of a time-sharing strategy. This strategy gives birth to two distinct modes: human-centered and vehicle-centered (Figure 4). Both modes are subsequently integrated into the physical space, effectively redefining the street's layout to align with immediate user requisites. The result is a flexible and versatile space capable of accommodating a myriad of potential public activities.[40]

Figure 4. Envisaged Conceptual Map of Tidal Streets

Wondrous Markets

Engaging scenes can be effectively brought to life through operations within physical spaces. This transformation shifts the consumption paradigm from mere appearances and concepts to immersive consumption scenarios. Further fueled by the relentless advancement of digital technology, the creation of consumption scenes transcends physical space constraints, extending into the realm of digital space. This expansion leverages the dimensions of the digital twin[41] to conjure scenes that possess a more profound impact than their physical counterparts (Figure 5). Urban neighborhoods serve as crucial repositories of urban cultural heritage.[42] In tandem with the transition from production-centric to consumption-centric urban functions, consumption becomes inherently entwined with culture, resulting in the evolution of cultural aesthetics within neighborhoods.[43] Concerning consumption itself, confining it within the bounds of a "commodity-money" cycle falls short. In contemporary society, the focus of consumption is shifting from mere fulfillment of needs to cultural consumption that seeks spiritual gratification (Figure 6). Commercial districts no longer serve as mere arenas for the exchange of money and commodities; rather, they evolve into harmonious coalescences of consumption and culture.[44]

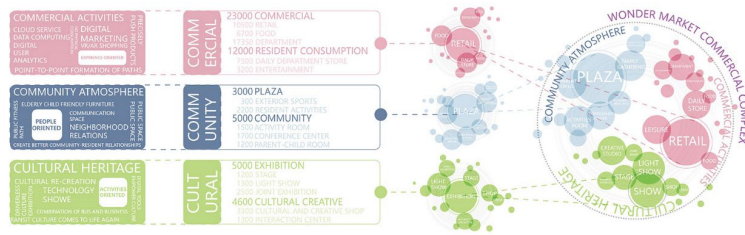*Figure 5. Envisaged Conceptual Map of the Wondrous Markets*

Figure 6. Digital Empowerment Transformation of the Wondrous Markets

Amid the quest to forge "Wondrous Markets," digital technology emerges as a catalyst, reshaping the conventional role of a commercial complex—a shift from catering solely to distinct consumption needs toward offering a spectrum of activities within a culturally rich consumption complex. Leveraging digital user analysis, tailored consumption pathways are charted based on user profiles. Cultural experiences are seamlessly woven into consumption endeavors through the aid of Augmented Reality (AR), Virtual Reality (VR) equipment, and an expansive array of projection technologies. This seamless fusion of culture and consumption is facilitated by an intricate public space matrix (Figure 7). The ground floor adopts a fully open layout, establishing an uninterrupted public interface.[45] This configuration seamlessly integrates commercial exhibition spaces, technology showcases, and recreational zones for residents. This amalgamation culminates in a multifaceted and versatile public domain.[46] From communal expanses to private enclaves, the ever-evolving spatial design interlaces with the cultural fabric of the Taikoo Li shopping district and the Sanlitun neighborhood. The outcome is a tangible realization of the harmonious interplay between consumption and culture (Figure 8).
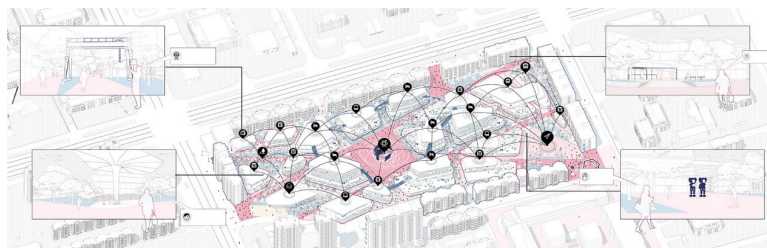

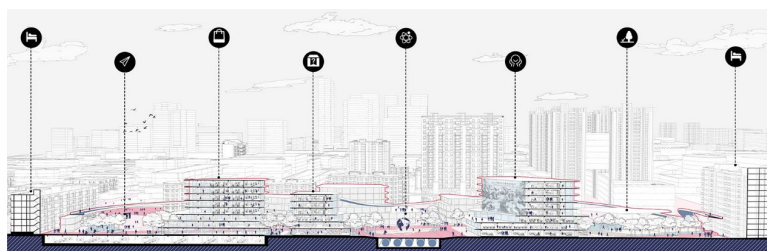*Figure 7. Creation of Diverse Public Spaces*

Figure 8. Creation of Enhanced Public Amenities

Symbiotic Neighborhoods

Distinguished from the conventional closed and static commercial operations,[47] the Sanlitun neighborhood embarks on a journey rooted in public interest.[48] Through an open narrative structure and dynamic narrative scenes, it realigns the operational dynamics among diverse levels and focal scales—transforming potential discrepancies into a unified collaboration under a shared operational focus. In contrast, single-subject operated urban spaces adhering to static narrative structures risk spatial uniformity and loss of focus.[49] In sharp contrast, the non-static open narrative approach thrives

on high-density, multi-tiered, and all-encompassing operation, nurturing the symbiotic relationship between the city and its inhabitants.

Symbiotic Neighborhoods represents a multi-faceted operational community centered around Sanlitun Street (Figure 9). This operational framework is spearheaded by Sanlitun Street, overseen by the Swire Group, Beijing Public Transportation Group, and a forthcoming third-party team. This innovative operational model places pronounced emphasis on public interests. A portion of the profits derived from data and spatial resources within the digital and physical realms of the operational platform is allocated toward facility upgrades and the operational maintenance infrastructure. Additionally, a portion of the profits is reinvested back into the operational entity.
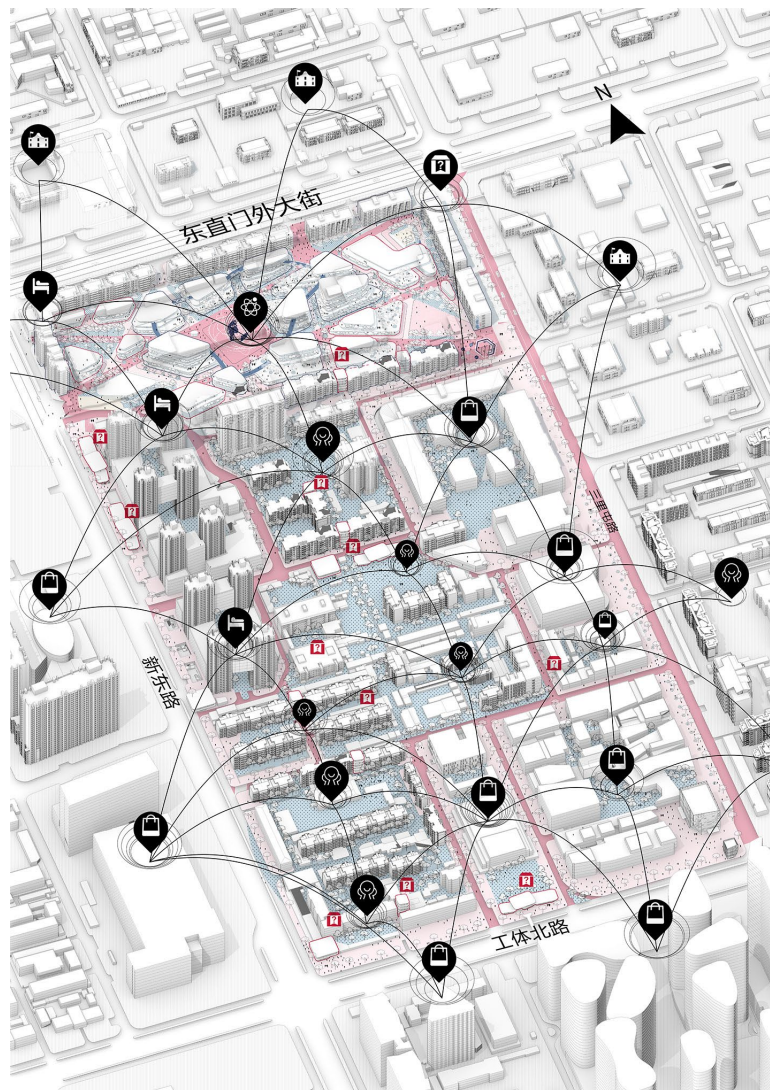

Figure 9. Symbiotic Neighborhood Concept

CONCLUSION

Digital transformation introduces new demands and opportunities for urban renewal and development. Urban spaces are transitioning from traditional physical and social dimensions to a digitized "digital space," resulting in a more flexible and efficient allocation of production factors within cities. This paper examines the significance of digital transformation in achieving equitable, diverse, and inclusive urban regeneration, utilizing Beijing's Sanlitun business district in the Chaoyang District as

a case study. Through the fusion of traditional physical, social, and digital spaces, we have introduced the concepts of "Blind Box Shops," "Tidal Streets," "Wondrous Markets," and "Symbiotic Neighborhoods." A comprehensive four-tier integrated design strategy encompassing "Blind Box Shops," "Tidal Streets," "Wondrous Markets," and "Symbiotic Neighborhoods" has been devised to promote equitable, diverse, and inclusive urban renewal.

In essence, by harnessing the amalgamation of digital technologies and societal resources, cities can attain equitable, diverse, and inclusive progress, thereby providing residents and consumers with more intelligent, convenient, and diverse spatial environments and services. As digital technologies continue to evolve, cities will persist in exploration and innovation, striving for sustainable urban development and advancement.

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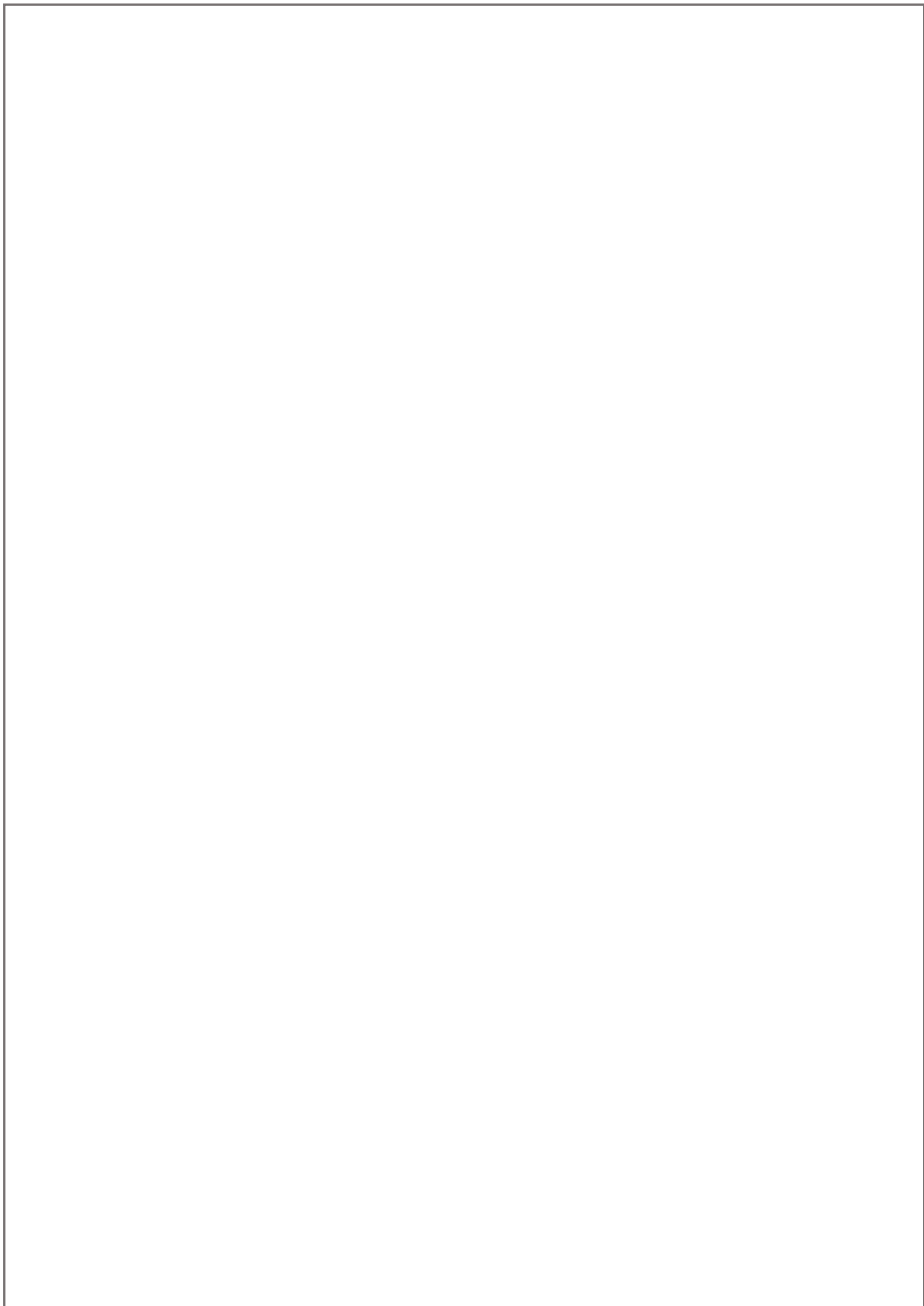
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