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A GREEN URBAN FUTURE

Scaled-Up Perspectives in Urban Green for Human-Centered and Livable Urban Cores

FINLAND FUTURES RESEARCH CENTRE
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Green **IN** TURKU



Turun yliopisto
University of Turku



FINLAND FUTURES
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TURKU
ÅBO

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ACKNOWLEDGMENTS

This report has been prepared in the frame of the Green-In-TURKU Project; Towards a Greener Urban Future: Investigating Innovative Solutions to Increase Livability in the Inner City-Perspectives for the City of Turku to provide Turku's city officials with a state-of-the-art update on global greening strategies across European cities and abroad. The report introduces fresh perspectives for how cities are promoting the value in green capital to find solutions to local challenges and it is the first of three reports scheduled for this project. A second report A Study of Green And Open Spaces in Turku has been prepared as part of an in-depth investigation of Turku's urban structure including past and present developments in the green front, and it will be integrated into the project's final report and spatial analysis with recommendations for increasing urban vibrancy and livability in the city center of Turku.

We would like to give special thanks to the City of Turku for supporting the Green-In-TURKU Project and for making this research possible. This report has been generated as part of an urban futures research on sustainable innovative strategies to provide the authorities with a major thrust of evidence of how the focus on the quality aspects of green and open spaces, could significantly support the transformation of the city center and urban landscape. We would like to acknowledge all contributors from the academic, public, enterprise, and civil society for their cooperation in particular, the Turku City Planning and Sustainability Office; our colleagues at the Finland Futures Research Centre and the HafenCity University in Hamburg that currently assist us with knowledge exchange as specialists in the areas of Urban Futures Research and Sustainable Development of the built environment.

ABOUT THE AUTHORS

Ana Maria Jones is a researcher and urban planner whose work has been concentrated on sustainable development of urban cores and resource efficiency in planning. Her research focus has been on the urban green space; water-sensitive strategies; partnerships; advocacy and communication. Since last November, Ana joined the Finland Futures Research Centre at the University of Turku where she is currently conducting urban research on the future of green areas in city centers and on the understanding of human-centered related approaches to greenery and public space. From 2014–2016, Ana partook in the transnational European-Baltic cooperation, project Baltic Flows, and collaborated as researcher and project leader focusing on nature-based rainwater strategies to mitigate the impact of urban development on water ecosystems. She has provided scientific support and recommendations to the Hamburg's Ministry for Environment and Energy (BUE) during the planning of the first in Germany, *Hamburg Green Roof Strategy* more specifically on international regulatory frameworks and scale-up of green-related developments in urban cores. In the past, Ana has collaborated with the U.S. Green Building Council New York City in support of the resilience advocacy group and contributed with activities towards the production of the *Building Resiliency Task Force Report* on methods for building a more resilient infrastructure for the City of New York. She has worked on implementation of communication plans and contributed to various publications including the *Urban Stormwater Infrastructure Planning: Green Methods and Strategies for Sustainable Management of Stormwater in Baltic Cities*; the report on *New Knowledge in Urban Stormwater Management*; and her master thesis, *Rethinking Green: Ventures and Partnerships Reshaping the Approach to Green Infrastructure Planning in Cities*.

Markku Wilenius is a professor of futures studies at the Turku University Business School. In 2016–2017 he has presided the *Turku City Center Vision-2050* committee, nominated by the City Council of Turku. Turku is after Helsinki the most import urban conglomerate in Finland. In 2015 he co-founded the Turku Complex Systems Institute at the University of Turku where he led the *Future of Cities and Communities Program 2015–2017*, focusing on developing tools and methods to understand the long-term development of urban areas. He currently holds the UNESCO Chair in Learning Society and Futures of Education. He has worked for over 20 years in the field of futures studies and is the president of two foundations, the Walter Ahlstrom and the Runar Backstrom foundations that are focusing on supporting scientific research. He has previously worked with Allianz, the world's largest private insurer, leading their strategic research and development unit. His research interests lie in several topics all related to sustainability: In understanding how to prepare for wicked socio-economic problems; in the exploration of the future paths of the bioeconomy; and in the spreading futures literacy to the second level education institutes throughout the world. His research interest also extends to the future development of healthy urban cores. Besides, he has over the last fifteen years worked with organizational transformation of numerous companies and public sector. He is a member of Club of Rome and has led the Finnish delegation in Johannesburg Sustainable Development Summit. He has widely published books and articles. His most recent book is born out of his interest on long-term socio-economic waves and is called *Patterns of the Future. Understanding the Next 40 Years of Global Change* (World Scientific, London, 2017).



1. A VISIONARY CITY AS A GREEN CITY: REIMAGINING THE CORE URBAN LANDSCAPE IN THE POST-INDUSTRIAL AGE

This decade marks the point where more people, for the first time in the history of the human culture, live their daily lives in the cities rather than in rural settings. This means cities are becoming more condense, the space within city limits is more precious and the amount of the services needed for this growing influx of people is shooting through the roofs. Cities are becoming the nexus of human experience.

The challenge that this trend in development presents is fundamental: How to prevent cities from becoming a compilation of quick measures to react on emerging needs? How to harness the often chaotic development that results in congestion, traffic jams and loads of mechanically created noise? For the human eye and experience, many cities today look rather ugly and uninteresting. What is more, their design is not, in any real sense, human-centric and they seemed to be built for cars, buildings and commerce. Of course, all these activities are originally meant to enhance human comfort with, however, massive side effects.

The real shift we are observing is this: we are not asking anymore for comfortable solutions only. Much more than that, we are asking for interesting and attractive solutions and developments, something which goes at the heart of human experience. It is time to take the human and the social components into account when building the cities.

This viewpoint changes everything. In city planning, we are not good at measuring the human experience. Instead, we have more than enough measures to assess financial flows and economic turnover. With this in mind, there is no wonder we end up producing results that may be financially viable for the short-term but from human experience point of view, a complete disaster.

We see these totems of mindless development everywhere, in almost every city. Sometimes, they are just annoying patches here and there. More often than not, unfortunately, they dominate the urban environment. And the more center one goes, the more dull the experiences become. Cars, buses, ugly looking buildings, noise, hardly any space for walking, talking or cycling. And hardly any green.

City center of Turku is not much different from this description. Turku's commercial center resembles that of a bus station, as one colleague, professor of urban planning, noted when he saw the city center of Turku for the first time. Around the center, there are buildings that are mostly shaped purely by private commercial interest with very little respect the long historical context of the city or without any sense of the whole. The space is socially deprived lacking meaning. Moreover, there is very little green space to be experienced. This is against the fact there is actually quite a lot of space. The open market plaza (currently under construction because of the parking plot to be built under plaza) in the middle of the commercial area is considered frightening and thus an unattractive part of the city.

A similar case follows in the historic center of the city, in the old market square (the Suurtori). A space that represents the cultural upbringing of historic Finland better than any other single space in the country, is cut from the middle by a four-lane motorway with constant heavy traffic causing a dramatic downgrading of the area that has all the potential for amenities. It is right in the heart of the city, it has beautiful buildings around and a good amount of open space available. There is also a layer of green in the small parks surrounding it and the river flows right by it. Alas. as for now, the function of the space is more for transit, users do not stay and the area has developed hardly any services around it.

Cities, like human beings, can be measured by the distance between the actual and the potential. The actual is based on our observations while the potential is grounded on our complex set of desires

and ambitions. In the *City Center Vision of Turku 2050*¹, we touched on some of these ambitions by visualizing and arguing why Turku should take a great leap forward to realizing some its great potential: to become more human-centered, better functioning and more beautiful city for its inhabitants and visitors. And more green.

Green, we need to remember, means not only grass, trees and flowers, biomass in the manifold forms. Nature contains also a symbolic value. It is nourishment for the soul and our experience, something that connect us to our earth system, indeed to the reality around us. Above all, green means life, in contrast to dead materials of concrete and steel, so prevalent in our modern cities. In the fundamental sense of the word, green is our home.

In terms of greening, research has shown that Turku has an extraordinary capacity for biodiversity. It has a pristine archipelago, large parks and green areas surrounding the city, a major river, the River Aura, flowing through it and rich soils underneath its infrastructure. Our ambition is to bring Turku's exceptional biodiversity richness right into the center of the city, one way or another.

Green areas have also a strong social component. A patch of undisturbed green attracts people together. Thus green and social functions rhyme well together. Using green to strengthen social cohesion in a real way open up huge opportunities. Thus, a visionary city is the green city for us. It's a city that really cares for its people by bringing nature to the doorstep of every citizen.

In this report, we have casted a good look to what is going around in the cities of the world in terms of new green initiatives and developments. What type of strategic impulses are developing, that integrate green into social, economic as well as to concrete physical planning. Using futures studies methodologies, we are addressing the hugely interesting global phenomena, where cities have started to question their old values and operating principles.

Indeed, as we have observed is that when it comes to visionary cities, the question is how to make modern city centers the living rooms for their inhabitants and visitors; how to create coziness and beauty around; how to enhance mobility by simple means; how to design areas that have multiple uses (recreational, communal, residential, commercial etc.); in other words, how to enhance the human experience in the heart of the city.

More often than not, transforming the city it not so much about building a new, as it is about rejuvenating the old and existing. We must take our existing urban space into better use and this means more play, more flora and fauna, more natural beauty, more physical exercise and more learning all at the heart of cities. Ultimately, what we need is to organize our city centers in much more efficient ways.

Eventually, we are faced with the fundamental question: What are cities for? We claim that in the future, the mission of the city is not only to provide the basic amenities to decent life as it has been this far. No, the real purpose come from connecting our lifeline back with nature. It is to vitalize our urban experience with what, at the end of the day, is most precious to us: our intrinsic connection to outer nature with all its biodiversity to the inner nature in ourselves. Only then cities can be socially fruitful and provide platform for our experience with our fellow human beings.

¹ https://issuu.com/turunviestinta/docs/20171017_turku_visiokirja_web_singl

1.1 Urban Futures Research

Urban Futures Research is a branch of knowledge that considers a systematic approach to problem solving and phenomena in order to provide a deeper understanding of the dynamic and rapid changes of our complex world helping us to create alternative paths for a better future (Wilenius, 2017). Futures research is rooted in the concept of long waves (See Fig. 1) aim to explore the patterns of change to better understand innovation, trends, and discontinuities in long-term development to ultimately anticipate future change (Wilenius, 2017). In essence, future studies is about transformation and for the purpose of this project, it is about the reinterpretation of the city and the fundamental values that underlie the sustainable evolution and duality of city centers not only as places for commerce but also as human environments where people would want to live, work and grow older. In this context, alternative scenarios for the future of urban life are studied based on ethical, functional, and aesthetic principals placing a strong emphasis on the value and access to green spaces as intrinsic to good quality of life. The role of urban futures studies here is then to present alternative paths and opportunities that will inspire the emergence of new trajectories and concepts to can help advance the sustainable development of urban centers giving full consideration to nature and human capital aspects as decisive elements in effective planning.

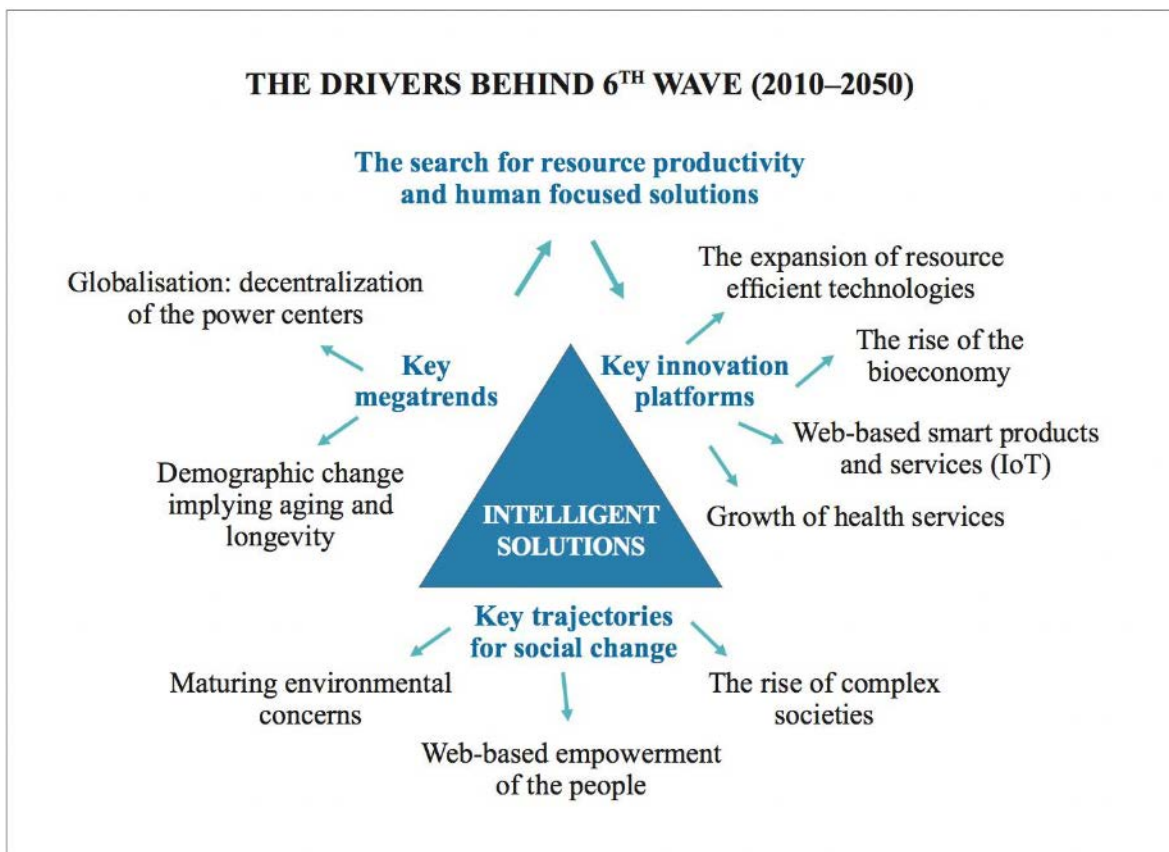


Figure 1. The drivers behind sixth wave (2010–2050).

Futures studies delivers inputs in the form of *Foresight* to give an understanding of the future and the possibilities. Applying futures studies to a particular subject takes on different approaches. Wilenius (2017) gives a detailed account of the three main approaches used in futures studies for applying foresight: a) A *probabilistic* approach based on Newtonian physics and in the analysis of past events for predicting futures; b) A *possibilistic* approach that gives consideration to not just one but multiple scenarios of potential futures taking art and culture as a starting point; and c) A *constructivist* approach based on the concept of living systems and organisms actively creating new path and connections within

the system structure as they evolve. These three approaches help to highlight the complexity and dynamic nature of futures research in its application.

Also, applying foresight to city context requires synthesis and understanding of short-to-medium-term trends. It entails the comprehensive analysis of megatrends and the evaluation of *weak signals* as warnings of emerging issues and their potentiality to become megatrends, a sign for impactful events, or discontinuities (Taylor, et al., 2015). The goal of applied foresight is essentially the optimization of a given system and its internal individual and collective processes in order to construct informed alternative pathways of ideal scenarios and to orient a new course of action.

In urban planning, a futures research approach considers of urban flows, systems and subsystems of ecological, social, economic, political and technological nature viewed as applied systems thinking. The parallel and transitional relationship between urban futures as systems flows of the urban space is an important area of research to support the future sustainable development of cities. The integration of futures studies and urban studies has shown to share similar levels of complexity and multidisciplinary as explained by Sirkka Heinonen (Heinonen, et al., 2017) who has characterized and compared both fields to give understanding of the multi dimensions of urban futures and how they overlap with the sphere of futures research (See Table 1).

FUTURES STUDIES	URBAN FUTURES
↗ Long timeframe	↗ Long-term sustainability of cities
↗ Complexity, systems thinking, and holistic thinking- connectivity	↗ City as a system / City as a whole
↗ Multidisciplinarity and multisectorality (breaking boundaries between different fields of study, industries, and actors)	↗ City as crossroads of several activities, fields and actors
↗ Critical thinking and constant questioning of the futures	↗ Revisiting core assumptions about the 'city'
↗ Proactivity (affecting and creating the future)	↗ Goals for the good life in cities / multi-stakeholders
↗ Participatory approaches	↗ Citizen movements, grassroots action
↗ Alternative thinking and scenario thinking	↗ New narratives for urban development
↗ Identifying discontinuities, disruptions, and tipping points	↗ Cities full of surprises, serendipity
↗ Taking radical, unorthodox and unconventional views seriously	↗ Open innovation for urban planning and crowdsourcing

Table 1. Characteristics of urban futures and their relationship with urban studies (Heinonen, et al., 2017).

When taking a systems approach to study the built environment, urban futures helps to evaluate the urban metabolism which is defined as the “totality of the technical and socioeconomic processes taking place in the cities” (König , et al., 2010). From this perspective, focus can be placed on spatial systems boundaries and the mechanisms of the living space involving processes in which the urban landscape undergoes changes from the soil, raw materials, energy and water into wastes, emissions and heat in the downstream of the urban cycle. The parallels in terms of systems complexity, dynamic and rapid changes overlapping both, futures studies and urban futures have significant implications, hence the need to further explore these interconnections as valuable tools for urban planning and the future sustainable development of cities.

1.2 Definitions

Green City: In a general sense, green cities are defined as organisms that provide clean air, clean water and pleasant streets and parks; and are also resilient to ecological, social and economic challenges (Kahn, 2006). The term *green* in the human context has been defined as anything that is life-enhancing including respect for the earth, all its life and physical make-up, and the cycles that maintain it (Johnson, 1991).

Urban greening: In the context of city strategy, urban greening is understood as an action that supports diverse and healthy land and soil ecosystems. It refers to the process of dealing with the elements of natural capital. Urban greening is also a design oriented strategy focused on the growing of plants and their interconnection with the built environment. The *greening* of urban centers extends to strategies for urban forest, biodiversity, ecosystem services enhancement, the greening of streets, plazas, blocks, the public space, as well as neighborhoods, new and existing development.

Green Infrastructure: A multi-functional system of technologies designed to perform in a decentralized manner for the purpose of restoring natural ecosystems and water cycles. The United States Environmental Protection Agency (EPA)² defines green infrastructure as the patchwork of natural areas that provide habitat, flood protection, cleaner air, and cleaner water.

Ecosystems: An environment composed of different elements including microorganisms, soils, forest, lakes, rivers, oceans, living beings, machines and cities linked to one another by flows of energy, materials, and information (König , et al., 2010).

Sustainable Development: A long-term approach to development. Commonly known as development that “meets the needs of the present without compromising the ability of future generations to meet their own needs” – The Brundtland Commission in 1987 (König , et al., 2010).

Livability: Livability is characteristic of places where people want to live and work. Indicators of livability in many cities with a high livability index include an ideal mix of prosperity; infrastructure; safety; services; and lifestyle. (JLL Cities Research Centre, 2016).

Social Capital: Relates to people and the relationships, norms, networks, value systems, and laws of social trust and reciprocity that develop between individuals and that facilitate the coordination and cooperation of shared benefits (Newman & Jennings, 2008).

Urban Centre: Defined as a cluster of contiguous grid cells of 1 km² with a density of at least 1,500 inhabitants per square kilometer and a minimum population of 50,000 (Grunewald, et al., 2018).

Urban Futures: Urban futures is the study of urban flows, systems and subsystems of ecological, social, economic, political, and technological nature, viewed through the lens of futures and its applied systems thinking (Heinonen, et al., 2017).

Weak Signals: A weak signal in futures studies is defined as an early warning of change, which typically becomes stronger by combining it with other signals (Hiltunen, 2008). Weak signals are then signs of currently weak but possibly strengthening phenomena. They can also be an early warning of a megatrend, a threat or a discontinuity. Weak signals may indicate emerging issues; however, not all weak signals may lead or point out to anything and are also not easy to detect (Taylor, et al., 2015).

² www.epa.gov

1.3 The Green-In-TURKU Project

“A pulsating heart is a durable competitive advantage for the entire city.” Prof. Markku Wilenius



The Green-In-TURKU Urban Futures Project was conceived as one priority area of Turku City Center Vision 2050 Plan:³ *Towards A New Turku*; and as part of the city’s overarching strategy to strengthen Turku’s central districts reinforcing Turku’s position as a cultural capital and vibrant city of a pleasant collective environment for residents and visitors alike (Towards a New Turku , 2017).

During the participatory process of the Turku’s Vision Plan, an open futures forum program was prepared and discussions with the community took place concerning type of actions that could best support the enhancement of the city center. At the various sessions, attention was brought to the strategic planning of *green spaces* as crucial for urban vibrancy. The results compiled by the vision group on the participatory process were consolidated into a set of *One Hundred Actions* (See Table 2) that included the formulation of ideas and initiatives with the involvement of stakeholders and sectors. The results showed that a majority of the proposed actions (more than 50 percent) emphasized the need for

³ www.turku.fi/en/vision2050

space functionality, more programming of public spaces and more amenity. Given the special emphasis that was placed on the functionality of green spaces as communal areas and considering the positive effects nature has on well-being, further analyses on how green spaces can be planned and integrated to support developments in the city core in a way that is implementable from an ecological, social, economic and cultural point of view, is required.

Towards A New Turku: Vision for the City Centre 2050 <i>A Study of One Hundred Actions</i>	
ENVIRONMENT AND URBAN GREEN	
<p>26. Increasing the functionality of parks. 27. Reducing the maximum driving speed at the innermost center and on inhabited streets. 30. Giving pedestrians the priority in the innermost center traffic. 36. Building a green corridor extending from the River Aura to Puolala Park. 49. Emphasizing the role of parks as a factor creating a pleasant environment for residents, and their role as a travel attraction. 53. Launching a network of pocket parks.</p>	<p>55. Combining the Sappalinnä Park and the Sports Park with the bank of the River Aura as part of the Turku Centre walking route. 57. Extending the Barker Park to the bank of the River Aura. 58. Increasing urban green in the entire central area: trees alongside the streets, trees at squares and plazas etc. 61. Using rooftops of new buildings, e.g. solar energy, rooftop gardens etc. 75. Producing all lighting with solar power. 95. Making water a visible streetscape element also in other places than the riverbank.</p>
AMENITIES	
<p>4. Using the technology of augmented reality in the storytelling of the historic Turku. 7. Connecting the Handicrafts Museum as part of Old Town via Vartiovuori. 8. Introducing new cafés and restaurants, galleries and co-working spaces of creative work to replace offices of the Old Great Square 11. Bringing culture outside the current museum and other cultural buildings. 18. Making market squares more suitable for use around the year with canopies and pavilions. 19. Turning part of the Market Square into an event park (such as Kungsträdgården). 24. Creating attractions at the center for families with children: playgrounds, placing shops intended for families with children in the same facilities, etc. 25. Building a children’s playground (e.g. a carousel) at the library square. 33. Connecting the archipelago more tightly to the center, for instance by promoting water traffic. 34. Building a city beach at the riverbank. 38. Offering tourists with no cars better connections and services (mini train, rickshaws, city bikes with separate space for kids, a “London bus” etc.) and guided tours to Turku Castle, the harbor, Luostarinmäki, Ruissalo etc.</p>	<p>51. Building a statue biennial in Puolala Park. 52. Creating a wonder park for children at Kakolanmäki. 60. Covering the rail yard for home building use. Creating a place similar to the Teurastamo abattoir area in Helsinki with restaurants and an opportunity for shared use of the yard area: city picnic, city barbecue, garden, etc. 64. Making central routes of light traffic pleasant and feasible. 70. Building a smooth and pleasant walking and cycling connection from Logomo to the center 71. Making Piispankatu more vivid. 73. Synchronising the opening times of shops in the center. 74. Making the center the hub of modern basement level shops. 76. Giving businesses permission to use street space (e.g. ower sales on the pedestrian street) and to decorate the front of their own shops. 86. Keeping the center open 24/7. 88. Organizing a water bus connection from Hirvensalo to the center. 89. Improving the evening use of the Market Square. 91. Supporting the joint marketing of the specialty shops of the center.</p>

<p>44. Creating new cultural spaces in the innermost center.</p> <p>45. Opening a concert hall in the area of Puutori Square and Aninkainen.</p> <p>50. Improving the functionality of the Sports Park around the year.</p>	<p>96. Building an archipelago cruise harbor.</p> <p>97. Increasing water bus / water taxi activity in the River Aura.</p>
AESTHETICS	
<p>1. Developing an attractive brand for the Old Town.</p> <p>3. Equipping the Old Town with signposts.</p> <p>5. Bringing a boutique hotel to the Old Town.</p>	<p>22. Making the Market Square more pleasant with green decorations and water elements.</p> <p>92. Making signposts in English</p>
DEVELOPMENT	
<p>9. Building parking space for Old Town visitors on the corner of Uudenmaankatu.</p> <p>37. Building a cheap guarded winter parking area for summer cars, campers, trailers and small boats.</p> <p>10. Carrying out a fixed-term experiment, prohibiting private vehicles at Uudenmaankatu from driving through at the Old Great Square</p> <p>12. Profiling universities as the generator of the city.</p> <p>13. Profiling the area behind the Turku Cathedral as a unique business hub in cooperation with the universities.</p> <p>14. Building permanent facilities for organizing events (e.g. a stage) at the Market Square.</p> <p>17. Creating a chain of creative work from Logomo to the university campus via the center.</p> <p>21. Taking care of the continuity of Market Square sales.</p> <p>28. Prohibiting car traffic in front of cultural buildings.</p> <p>29. Increasing lanes for public transport.</p> <p>31. Making public transport routes in the innermost center clearer.</p> <p>32. Reducing street parking.</p> <p>35. Strengthening the connection between the riverbank and the Market Square at the point of the River Aura by widening the pedestrian street and decreasing car lanes.</p> <p>41. Supporting the renovation of multi-use spaces.</p> <p>42. Giving construction monitoring the priority to handle building permits for the center in less than a month's time.</p> <p>46. Limiting drive-through traffic on the streets of the innermost center.</p> <p>47. Bringing public sector jobs back to the city center.</p>	<p>48. Attracting international investors and other operators to relocate to the center.</p> <p>54. Building a bridge for light traffic between the Sports Park and Vartiovuorenmäki over Neitsytpolku.</p> <p>56. Combining the Sports Park and Sappalinnanmäki using a bridge or similar to form a central park of cultural exercise.</p> <p>59. Developing the city hall park into a Fortuna market.</p> <p>62. Building cycling paths so that the Market Square and other key destinations are easily accessible.</p> <p>63. Connecting the areas developing around the current center to the center by high-quality biking connections.</p> <p>66. Building a pedestrian street between the Archbishop property and the Aura River.</p> <p>67. Expanding the routes of the Aura riverbank towards the direction of Halinen on both sides of the riverbank.</p> <p>68. Moving the light traffic of Itäinen Rantakatu on parking spaces and reserving the bank area of the River Aura for pedestrians.</p> <p>69. Turning the track connection between the harbor and Puistokatu a "Turku road" for light traffic.</p> <p>83. Building a limited service business hotel in Turku.</p> <p>90. Bringing more short-term selling points to parks, the riverbank etc.</p> <p>94. Advancing the sharing of ideas in different ways</p> <p>98. Bringing more public toilet facilities to the riverbank</p>

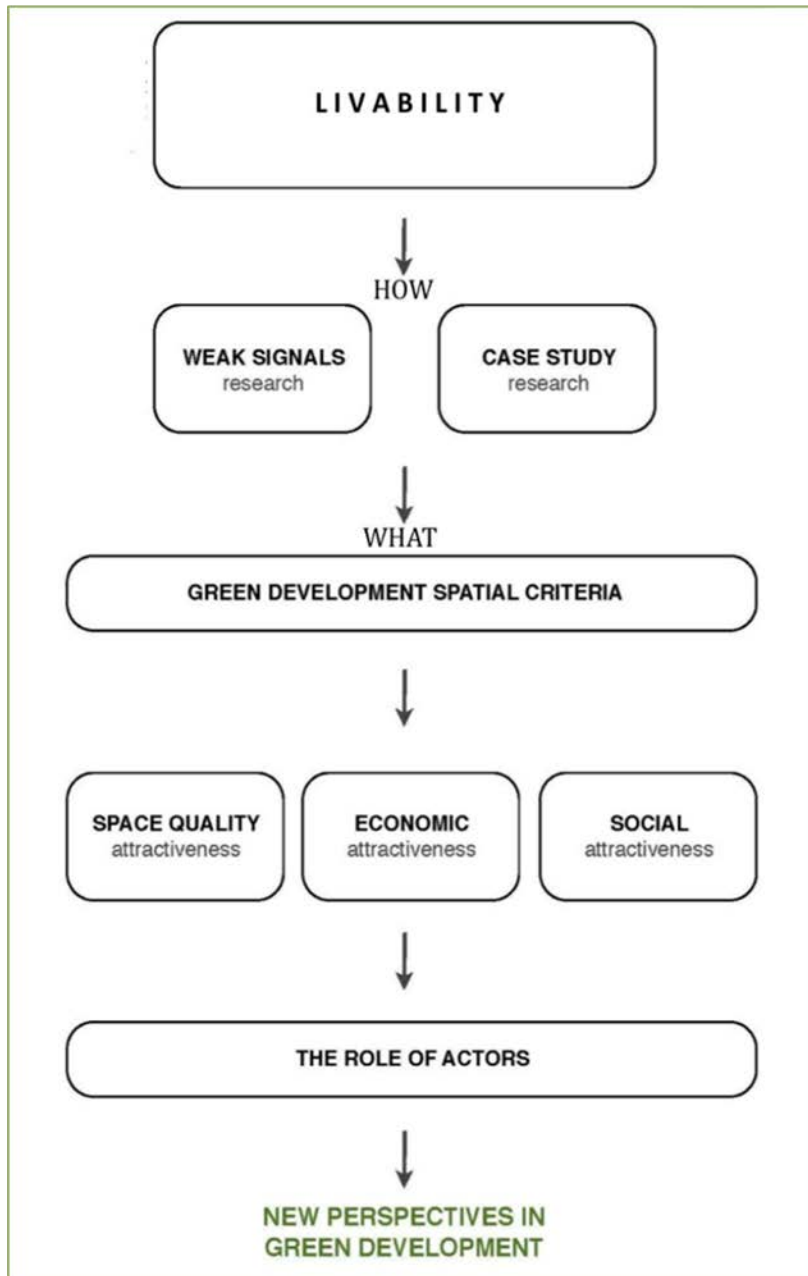
ACTITIVIES	
<p>2. Organizing guided tours in the historic Turku</p> <p>6. Creating premises for summer restaurant activity at the Turku Cathedral Square.</p> <p>15. Creating a festival of lights for the dark season in the surroundings of the Market Square.</p> <p>16. Using empty/old office houses as inexpensive meeting places and working facilities for entrepreneurs, students and artists.</p> <p>20. Building a skating track at the Market Square for the winter season.</p> <p>39. Promoting the organizing of events at the center and the riverbank by facilitating the permit protocols of the city.</p> <p>40. Enabling the use of city facilities for pop-up activities.</p> <p>43. Organizing a City festival – a well-organized and well-produced event representing the field of free arts (circus, dance, jazz, puppet theatre, food).</p> <p>65. Supporting winter cycling.</p> <p>72. Creating a winter city festival for all city residents.</p> <p>77. Bringing school events to the center.</p> <p>78. Using the street space of the center as a temporary game platform for events (e.g. the Turku tournament at the pedestrian street).</p>	<p>79. Bringing theatre premieres and promotion events of Logomo events to the center.</p> <p>80. Organizing Ruisrock morning events at the Market Square.</p> <p>81. Creating attractive travel packages for Easter (Turku/church/travel experiences).</p> <p>82. Organizing a flea market at Kauppahallinkuja near the Market Hall during weekends.</p> <p>84. Increasing the offering of maritime events, services and products</p> <p>85. Bringing online shop showrooms and events to the center.</p> <p>87. Improving leisure activity opportunities at the center.</p> <p>93. Organizing a shared cleaning event for the city residents</p> <p>99. Organizing small art happenings at the riverbank.</p> <p>100. Making events visible streetscape elements at the center. E.g. sports finals or concerts projected on the library wall.</p>

Table 2. List from the study of the Turku Vision 2050, One Hundred Actions, 2017.

The results of the Vision Group also emphasized the need for infrastructure developments of pedestrian and bicycle transport to support vibrancy. Overall, these compiled actions have led us to formulate one of the main questions guiding this research which is: What is the foresight that we need to have and the path that we need to follow to create the kind of innovative solutions that will create a green and vibrant inner city? Thus, the Green-In-TURKU Urban Futures project uses a future studies approach to explore ideal scenarios of desirable futures that can lead to the holistic transformation of the city starting at its core to help strengthen the profile of the city of Turku and its relevant position in the Baltic Sea Region.

This research is a comprehensive analysis of quality aspects surrounding the expansion of urban green areas and their pivotal role in strategic planning viewed as the essential connective tissue and subsystem, linking people, processes and services. Using foresight, this research builds a basic understanding of the complexity of green subsystems and provides perspectives and new narratives for how to innovative approaches could help transform the future development of urban cores.

Applying *foresight* methods, the project uses weak signals and studies urban trends, global changes and phenomena from the perspective of livability and well-being. Megatrends and global developments are investigated as a way to track rapid change and transformation of urbanities from internal and external sources including sources of disruption like building overdevelopment, transport infrastructure and industry. To think global and act local means that a combination of factors and their role in shaping the current urban landscape is considered by governments and planners to tackle local challenges. An approach to planning through the resourceful utilization of social, ecological and commercial capital should use the right combination of measures that fit in the overall complex urban ecosystem long-term.



Green-In-TURKU Urban Futures Project Framework.

Overview: The city of Turku is a trading city strategically located in 'Southwest Finland with a diverse and unique profile made out of vast amounts of land, natural, cultural, educational, and water resources. The city has direct access to its pristine archipelago which gives Turku a competitive advantage and identity. Already in 2014, Turku adopted a 2029 city strategy to highlight its 800 years anniversary celebration⁴ and the city has set out ambitious targets to become carbon neutral by 2040.

However, in spite of Turku's exceptional resources, the city faces challenges to invigorate core city center areas and to make more attractive for visitors and stimulating enough for newcomers and people from all groups to live and work. In Turku, there is a downward trend in which people flows, creation of new job opportunities and new business creation are developing at a satisfactory rate and Turku is not capitalizing sufficiently on its unique identity and resources, something that could very well serve as an engine to attract sufficient people to the city's shores. This issue is of particular concern since many other comparable cities with fewer resources, are already investing in their infrastructure and paying increasing attention to these issues.

From an urban design perspective, Turku could benefit from putting a strong emphasis on: *First*, defining the identity of green spaces base on their individual location, context, typology, function and aesthetic value. *Second*, adopting a resource efficiency approach to the planning and redesign of underutilized green and open spaces. *Third*, making provisions for an improved dynamic interplay between green-grey *public* areas and promenades capitalizing on the generous amount of parks and plazas the city has, as well as the scale of its streets infrastructure, and to use those as a resource to enhance user experience. In Finland people tend to have a strong relationship with nature thus in building from these strengths Turku could find way to use its nature capital as an advantage to strengthen its identity. *Forth*, reassessing the pivotal role of green areas as a unifying element and subsystem part of the overall system infrastructure of the city approached as a collection of areas forming a network.

Our Aim: The aim of this project is to conduct a qualitative research using a futures research and case studies methodology to further our understanding and knowledge of why, what and how to increase livability and attractiveness in the city core by means of greening initiatives. By studying past and present approaches and instruments, we will develop scenarios and visualizations of how a subsystem of green areas can be activated as part of the connecting tissue of the urban realm and show how green spaces could be more effectively planned if they are to be activated within the city center.

Objectives: Through a comprehensive analysis in the area of green development, this research will:

1. Provide a detail evaluation of green strategies, both at global and local (Turku) levels taking into account: a) The spatial qualities of the inner city; b) The multi functionality of green spaces; c) The social and economic criteria applied in public space; and d) The diverse planning approaches for hybrid and mixed-use open space planning.
2. Identify the role of public and private actors, enterprise and the general public as direct beneficiaries and main contributors to the planning process by focusing on participatory methods, regulatory and policy frameworks, incentives and requirements.
3. Introduce the strategic importance of foresight as a planning tool and bring in outside factors and other unknown urban realities as inputs. Through the process of foresight, this project will analyze past and current trends and intensified land use pressures impacting the urban core thus introduce newly evolved green planning structures towards a new vision in urban green development.

⁴ www.turku.fi/kaupunkistrategia

4. Make sizeable contributions towards urban innovation and the sustainable development of urban cores in support of the Turku city 2029 strategy and Inner City Turku 2050 Vision Plan forging new pathways for interdisciplinary and transnational collaboration between academic and public sector officials in and around the Baltic Sea.

Methodology

This study uses a two-step methodology of qualitative futures research tools and case study analysis of projects that are part of a particular greening strategy and that distributed across various cities in the continents of Europe, the North America and Australia. Empirical observations, interviews, and comprehensive literature review is used to complement the research and evaluation of multiple local strategies at the various cities aim to address issues concerning rapid development and land use challenges impacting urban well-being.

Foresight: The use of foresight in this research employs *weak signal* methodology to enhance our understanding of urban green phenomena, giving consideration to trends, outside factors, discontinuities and unknown realities surrounding the development and evolution of urban centers. By applying foresight, the project aim to explore ideal futures scenarios for greening Turku's city core and identifying ideal trajectories for the effective integration of a green system introduced as the essential connecting tissue of the overall city infrastructure.

Weak signal Method: In our project, we use a long-term framework developed by Wilenius about the dynamic developmental patterns of our societies (Wilenius 2017). We explain how various socio-economic developments in the emerging sixth wave are expected to change the planning horizon of the inner city. This approach will also show how the planning horizon of the cities is steadily shifting to understand how resource efficiency and green solutions are based on much larger and more fundamental development demand. Plainly speaking, those cities wishing to be at the forefront of development, will probably need to reinvent their strategies to succeed. Based on above framework, we will search for the weak signals of this dynamic development by assessing what kind of new green elements and solutions can be found around the world.

Case Studies: The research methodology will be supported by a qualitative case study research to evaluate current innovative approaches in inner city planning. Providing an in-depth study of success stories with highly innovative green planning strategies and frameworks, this research takes a closer look into applicable developments in cities like, Hamburg and Barcelona with set targets for the planning of inner city redevelopment projects with comprehensive integrative urban green strategies already in effect. As part of the data collection, meetings and interviews will be conducted with corresponding authorities and city officials involved in the planning process to get further knowledge of key aspects, approaches and tools used during the development process and planning of green areas. The main areas of consideration when gathering information from the various cases include: Strategic city approach; Spatial, economic and social implications, stakeholders engagement; partnerships and successes and failures in participatory processes.

Literature Review: As part of our investigation and data collection in the field or urban greenery this project provides a comprehensive literature review on the latest research and current developments within the context of the inner city. Literature on the area of sustainable green development is to provide solid background and the basis for the formulation of ideas and solutions towards a greener urban future. Interviews with different actors from the academic, public and private sector will also complement this part of the research.

Spatial Observations: To gain further insight and understanding of urban life and the interactions between social public space, design elements, activities and programming, empirical observations are conducted using Gehl's observation tool to gain further understanding of how people use the space and identify different and also key users and uses. This method complements our evaluation tool the 12 Quality Criteria for Public Space by Jan Gehl to help us get an understanding of urban phenomena with regards to public space and more accurately predict scenarios for how life in the city could unfold in the future.



2. GREENING THE CITY OF THE FUTURE

In today's development, the greening of cities by means of planning and managing land and soil ecosystems appears to be one of the most fundamental driving force in the transformation of cities and communities. An area that is prompting cities to work proactively on exposing the key role that natural capital has in shaping future sustainable development of urban life in the years to come. Overall, the now dominant trend towards the development of "greening" strategies across cities as we see it today in many cities like Vienna, Hamburg, Barcelona, Sydney, Melbourne, Oslo, New York, only to name a few, can be centered around three main objectives:

1. Increase livability and well-being
2. Moving cities from car-centered to car-free societies
3. Deploying new models of governance and inclusive participation

Greening the city of the future then entails reflecting upon the full range of opportunities for sustainable growth in view of the interdependencies that exist between nature, people, and the built environment but also considering the inequalities and trade-offs that take place at connecting points and the need to aim for balance in how resources are valued, allocated and shared equally for greater good. In today's planning discourse, a system of green spaces integrated into the overall city network is understood as a supporting mechanism of nature ecosystem providing essential functions and irreplaceable benefits needed to sustain our social and ecological environment and to ensure that life in the cities has quality.

Ensuring access to quality of green space is becoming an increasingly difficult task in today's urban societies where the availability of land gets further reduced as cities become dense and more compact something that eventually leads to an increase in urban sprawl and the weakening of a compact urban type of development. For this reason, the systematic approach to planning and the increase access to quality of green spaces and diversity of green could be a decisive aspects for people to opt for living the urban life type of experience or rather decide for a suburban and rural type of lifestyle.

From a city strategy perspective, different cities are addressing local challenges and deploying comprehensive programs for how best to work with green areas in a systematic way. In cities like Sydney for example, a *Greening Sydney Plan* (Sydney, 2012) has been embedded in the city's *Environmental Action 2016-2021 Strategy and Action Plan* (Sydney, 2017) endorsed in March 2017; what is more, the City of Melbourne endorsed, in April 2017, the *City of Melbourne's Nature in the City Strategy*, the first strategy to create and maintain healthy ecosystems and biodiversity within the cityscape. The City of Vienna is another example of strong social-oriented planning formulated in the STEP 2025 thematic concept *Green and Open Spaces* (Administration, 2015) developed by the City of Vienna aimed to enhance and preserve a high quality of life in the city by increasing the network of green and open spaces through methods of self-organized urban gardening and activation of micro open spaces and public-private partnership models. In Barcelona, the *Master Plan for Trees 2017-2017* has included the structuring of greenery actions at new pedestrian streets, squares and superblocks as a strategy to reclaim overtaken public spaces and add new functional and recreational pockets of productive greenery. In May of 2017, the city also approved a stimulus program for the implementation of urban green infrastructure where the "how" aspects of implementing their urban green strategy, were explained to detail. In essence, the program gives a clear explanation on how the city intends to increase the amount of green space up to 1m² per capita by the year 2030⁵. In addition to the increase in green area, Barcelona's green infrastructure program has as priority to improve urban nature capital by

⁵ www.barcelona.cat/ca

merging city and citizens to participate in the planning of solutions and post-implementation aspects of projects.

From a mobility perspective, current trends involving the transformation of city centers from car-oriented to car-free urban cores (as we see in cities like Copenhagen and Burgos), have critical implications in the planning of attractive walking pathways and cycling lanes something of strategic importance for supporting better connectivity of green infrastructure networks systematically while also stimulating commuters to adopt and accept new alternatives of passive mobility. For example in the case of Vienna, the city's Urban Development Plan 2025 aim to increase the use of non.-motorized individual transit through the support of a comprehensive green and open space network strategy for the inner city. Growing concern for how to free cities from cars is leading to non-motorized mobility concepts aim at car-free societies oriented towards unconventional and human-centered planning structures inclusive and multifunctional in design and specifically planned to improve the quality of life in cities. Also, the emergence of innovative planning initiatives to increase the use of passive mobility like the example of the "Kindergarten design for bicycles and pedestrians" concept in Oslo,⁶ that rewards families that use bicycles to transport children to their kindergarten with subsidies for electric bicycles, bike trolleys and train/bus tickets, is an indication of the new pathways being created that will demand a supporting infrastructure of green spaces as key elements in the transition towards alternative mobility.

Maximizing the multi functionality and ground for ecosystem services to provide their various functions is an opportunity increase wellbeing for communities expanding to support social and cultural development. Historic parks in cities like Vienna are key for building tangible and intangible cultural capital. In city centers, historic green spaces are linked to historic buildings characterizing the city's heritage while at the same time supporting a positive image and strong identity for city. Historic parts require specific programming and criteria. A multi-dimensional approach to green development requires a diverse classification of spaces and spatial criteria. Green spaces help provide ground for sharing communities helping revitalize districts stimulating the participation of stakeholders in building vibrant resilient communities by sharing benefits, values and responsibilities. When more services are shared within communities and districts, the urban footprint gets reduced and that helps diminishing the negative impact of human activity on biodiversity and the environment as whole.

2.1 The Culture of Urban Greening

Current trends in urban development indicate that cities are undergoing transformation in land use functionality and in the utilization of nature capital (green) resources within the urban domain. Today, cities are predominantly moving back towards a more human-centered, efficient and responsible environment focusing on providing livability and good quality of life. At the past Urban Futures Global Conference (UFGC) that took place in Vienna, cities gathered to expose their future vision and a clear signal is pointing out the emergence of a new planning structures for cities aim at making collective efforts to guide urban development towards a more integrated and holistic approach deploying initiatives that create a stronger bound between citizens, nature and the built environment. The current trend we see today in today's city development is towards building a stronger urban network and a culture of sharing of experiences strongly reaching out across disciplines and sectors giving significant consideration to the power of social and human capital in building the cities of the future.

The green city strategies that were presented during the UFGC took, in most cases, an approach to the individual strengths and characteristics that each city is unique and to build from strengths. Overall, the support of local communities is demonstrating to be pivotal in the successful planning and implementation of projects and decisive for insuring the sustainability of projects after implementation. Another trend indicates that cities are moving towards building *quality* optimizing their existing urban

⁶ www.oslo.kommune.no

conditions by deploying initiatives to optimize existing (green) infrastructure thus prioritizing resource efficiency over building anew. As such, emphasis is placed on optimization of green considering public open spaces as a way to build a foundation of functions, multiple benefits highlighting the aesthetic form and on the sensory experiences areas can offer to the local community.

The following are key reflections extrapolated from a number of greening strategies presented during the urban futures conference in Vienna. The observations are focused on shared urban realities, challenges and also opportunities European cities are currently facing which are comparable and also-to some extent-opposing to the challenges the City of Turku is currently facing. Below, a short description of the various strategies is first introduced to then state direct implications for the Turku case.

URBAN FUTURES GLOBAL CONFERENCE – VIENNA 2018
Recommended approaches in the Planning of Green Cities and
Implications for the City of Turku

1. **FOCUS ON COMPLEXITY MANAGEMENT:** Understanding the systemic nature of city planning. In most progressive cities, the trend is towards taking the human approach as a starting point for city planning. Learning from Oslo super innovative *Future Built* greening strategies, the world’s largest sustainable construction project for the city center of Oslo will be based on a highly innovative planning approach aim to 1) Set ambitious targets and keep them; 2) Bring all the relevant players on to the table and from day one; 3) Concentrate on targets not on details.

IMPLICATIONS: Based on the above, the urban planning process in the city of Turku could consider a more systemic approach to its development based on the “purpose of function in the urban system” and as such create targets that integrative the design of holistic interactions of systems in order to move the city towards a new level of awareness and vibrancy.
2. **ENHANCE THE URBAN EXPERIENCE:** Comfort, flexibility and purpose are part of the key principals enhancing development strategically used as elements to create attractiveness in the city. The tendency being more about comfort for former generations and for the up-and-coming generations more about what is interesting. Here, cities take on the *Power of Context* approach to consider actions that enhance areas of specialization meanwhile targeting all groups of society. The city of Porto for example is developing an action plan focusing on the adaptation of urban workplaces to new working cultures and urban economies giving preference to millennials and their increasing demand for new co-creative and multi-functional spaces; therefore, adapting the needs of the industry to the provision of an enhanced urban work experience.

IMPLICATIONS: Simply put Turku’s city center needs create more sensory experiences by simply designing more interesting and inspiring elements as part of the public space expression. If the aim is to attract people, particularly younger generations, there needs to be a stronger focus on expression of Turku’s largest capital assets; i.e., its archipelago, educational, historical and port and cultural resources.
3. **LEAD CHANGE INTELLIGENTLY:** Cities are upgrading their skills to lead, this means more intelligent activation of different groups to city development. The core skills that progressive city leaders are demonstrating are the capacity to listen and the ability to persuade. The City of Barcelona has been recognized for his intelligent actions educating the community in participatory and democratic processes. The success of the implementation of the program Superblocks and its action plan has its roots in the active participation of communities and neighborhoods organization during its development. The initiative has as main priority to improve the quality of life establishing a new urbanity that prioritizes citizens recognizing the need for more public space

for activities, experiences, and recreation promoting biodiversity and the expansion of the city green spatial network.

IMPLICATIONS: Turku needs to look for ways to allocate more resources into identifying the stakeholders and alliances to boost collaboration considering all-inclusive participatory processes by listening and understanding key needs to create the knowledge platform from which the city can effectively design and deploy effective transformation strategies.

4. **BE BOLD WITH YOUR ACTIONS:** Another trend in development is focused around small and medium-size cities and on how small gestures can make a big difference. For medium-size cities importance is being placed on taking higher risks than for example big cities would take-this due to the fact that smaller cities may have lower funding resources available to carry out larger-scale intervention thus intelligent solutions on a smaller scale can have the potential to generate big results. Smaller cities could use their advantages in terms of scale, human, social and cultural capital to innovate and deploy interesting concepts; in essence, do more with less. The reactivation of the Laneways and fine grain spaces in the city center of Sydney is an example of a resourceful and efficient utilization of space of small, underutilized and hidden lanes in uninviting streets, transformed into vibrant urban blocks, thus adding value, and unique attractiveness to the city center blocks.

IMPLICATIONS: Turku should define its risk policies and be more courageous in taking risk by implementing testing labs and the deployment of small scale actions and unconventional solutions that create platform for experimenting, testing and talking. The aim should then be on experimentation of ambitious yet doable greening actions.

5. **RECOGNIZE THE DIVERSITY IN THE NEEDS:** The mixed city. The planning of mixed and diverse cities create opportunities to attract a wider range of users boosting social capital. The need for diversity in groups, users and functions in space opens up new perspectives for how multiply collaboration channels and expand the network of connections in the urban landscape. In the case of the City of Vienna, a strategy for green and open spaces has been planned keeping in mind that spaces need to allow flexibility in design, that is planning should not be just for today's users but also with consideration for future generations. The planning of a multi-functional green and open spaces strategy for Vienna is key for maintaining a social mix and for providing all groups of society equal access and amenities where to play, do sports, meet and have experiences while also learning about the natural environment. The strategy is in essence, a call for all groups of society to participate in the experience of making the city and promotes responsible stewardship.

IMPLICATIONS: Currently the city center of Turku is not fairly mixed. Green and open spaces lack proper distribution and access to areas with diverse functions where people from all groups can meet and carry out activities. Turku center attracts selective groups as it is the case in the current market plaza where mainly older groups predominate as customers of the local grocers and farmers that sell their crops on market days. In this case, the lack of sensory qualities in space fail to sufficiently entice a larger mix of age groups to visit and support not only market activities but also the small business community and local artisans key to city identity and the evolution of a strong city center.

2.2 Sustainable Urban Development and Trends

Current demographic trends in global urbanization indicates that cities are preferred areas for living. Today more than half of the world's population lives in cities. Urban growth is expected to continue to take place in medium and small-size cities around the world. In Europe, 72% of the population already lives in urban areas compared to 85% of the global population (United Nations Human Settlements Programme (UN-Habitat), 2016) which means cities will need to become more agile in anticipating positive and negative trends and solving crucial space-related challenges that may put at risk the sustainable development of urban areas and centers.

The Urban Agenda (Habitat III) adopted at the UN Conference for Housing and Sustainable Development in 2016 stated how “by 2050, the world's urban population is expected to nearly double, making urbanization one of the twenty-first century's most transformative trends” (UN, 2016). The Agenda emphasized the positive aspects of urbanization and how it could serve as a powerful tool for sustainable growth. It also highlighted the role of cities and local governments and the importance of developing actions through the lens of a sustainable development to open up opportunities for the urban population and better capitalize on the benefits that cities can offer.

The Sustainable Development Goals (SDGs), “The Future We Want” were adopted in September 25, 2015 aim to stress the need for multinational engagement, highlight the need for better urban planning and management of urban environments from the inclusive, safe, resilient and sustainable⁷ perspectives. The SDGs are based on the three pillars of sustainable development: economic development, social inclusion, and environmental sustainability-and their inter-linkages (Sachs, 2015). Among the seventeen SDGs that are part of the United Nations Development Program, the SDG #11, Sustainable Cities and Communities: Make Cities and Human Settlements Sustainable, calls for the need to better manage unsustainable urban growth and mitigate the negative impacts of urban sprawl. The SDG 11 has multiple targets and indicators. In terms of the future of greening in urban areas, this Goal specifically mentions under Target 11.7 that by 2030 cities need to consider the provision of adequate accessibility to green and public spaces. The indicators outlined for this target include an average share of the built-up area of cities designated as open space for public use for all, by sex, age and by people with disabilities.

“By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities.”

EU URBAN AGENDA

Partnership on Sustainable Land Use and Nature-Based Solutions (SUL-NBS)

Liveable compactness and Nature-based solutions

- Financial Models
- Greening the Cities
- Reducing Land Take
- Awareness and Capacity
- Functional Urban Areas

Source: www.ec.europa.eu

⁷ <https://sustainabledevelopment.un.org/sdg11>

*The Urban Agenda for the EU*⁸ was adopted in June 2016 aim to promote multi-level cooperation between Member States, the European Commission and cities; to stimulate growth, livability and innovation in EU cities; and finally to identify and tackle social challenges. The EU Urban Agenda uses a 3-step approach based on:

1. Improving the development, implementation and evaluation of EU legislation and instruments ('better regulation');
2. Ensuring better access to and utilization of European funds for cities ('better funding'); and
3. Enhancing the urban knowledge base and the sharing of best practices and cooperation between cities ('better knowledge').

Anchored in the Urban Agenda for the EU are actions that address Sustainable Land Use to develop solutions for the degradation of natural capital as a result of development. The Partnership on Sustainable Use of Land and Nature-based (SUL-NBS) is currently working on two overarching topics: Livable compactness and Nature-based solutions with a strong focus on greening.

The EU Biodiversity Strategy to 2020 adopted by the European Commission in 2011 requires under Target 2 that "by 2020, ecosystems and their services are maintained and enhanced by establishing green infrastructure and restoring at least 15% of degraded ecosystems" (European Commission, 2015). The European Commission reported that trends in pressures on ecosystems indicate a rapid increase in habitat changes, pollution and nutrient enrichment in the urban ecosystem.

An important step for the success of the *EU 2020 Biodiversity Strategy* is the development of the *EU Strategy on Green Infrastructure* as an important plan of action for protecting natural capital. The implementation of green infrastructure (GI) has been identified as a cost-effective measure with high a return on investment. The EU Strategy on Green Infrastructure highlights the importance of supporting natural and cultural heritage as part of the EU capital and identity. It also states how a systematic inclusion of green infrastructure could help reduce the loss of ecosystem services as a result of land take (European Commission, 2013).

2.3 The dimensions of sustainability

Cities benefit from the economies of scale as a result of the compactness of sectors, businesses and people concentrated in a given space. A model for a sustainable urban growth has been defined as that in which economic growth, social cohesion, justice and the elimination of social segregation work together as equal parts (Ebert, et al., 2011). The four dimensions of sustainable development have been defined as ecological cultural, social, and economic (König, et al., 2010).

Ecological sustainability: Ecology underpins the relationship between ecosystem functions and the built environment. Ecological sustainability considers the preservation of biodiversity and natural resources as essential to development. Large concentration of people in urban environment requires that cities take a more systemic approach to urban ecology in planning. According to Sachs (2015), cities should consider a combination of mitigation-adaptation approaches to ramp up their ecological efforts. Mitigation in this case implies a reduction of the carbon footprint e.g., the increase in non-motorized mobility; while adaptation implies building resilience as a way to deal with the unforeseen changes in the environment.

Cultural sustainability: A comprehensive approach to development is that which considers cultural tangible and intangible assets as vital for future generations. According to König et al (2010), "Cultural identity is as essential for societies as biodiversity is to nature." Siivonen (2008) also made reference to

⁸ <http://urbanagendaforthe.eu/>

the linkages between culture and nature as interactive processes of signs (living consciousness) that takes into account material and immaterial elements of the world (Siivonen, 2017). When we consider the power of context, cultural sustainability, with all its ramifications, has a pivotal role in urban identity and expression that goes far beyond the physical infrastructure of buildings and monuments. Historical parks as extension of buildings of cultural heritage can not only to express the historical past and present in their immediate surrounding but to extend their context beyond buildings.

Social sustainability: The social sphere of sustainable development follows the economic dimension of development as pivotal for providing human health, livability and quality of life in cities. Social sustainability considers social change and aspects related to demographic and population changes, ageing, urbanization, the spatial segregation in cities, as well as social restructuring urban processes (gentrification) and migration (Ebert, et al., 2011). A strong social urban fabric is that where ecological urban systems and natural cycles are well integrated and where there is a systemic interplay between nature and people.

Economic sustainability: Cities are engines of change where most of the economic activity is concentrated, products tested, services sold and where income is generated. Because of their compaction properties, cities benefit from the economies of scale as a result of the high concentration of sectors, businesses, and people in a given area. Taking a sustainable development approach to economic growth presents opportunities for a more equitable distribution of profits and land resources helping cities strike the right balance between people, planet, and profit. Connecting sustainable development, economic growth and profits create a new business philosophy in which organizations become aware of the manifold benefits of assuming a holistic approach to their business models promoting best practices and sustainable economic growth.

2.4 Challenges and Opportunities



Dimensions of sustainable development. Adopted from König et al (2010).

Attractive urban centers are planned to effectively reflect the identity and unique strengths, individual to each and every city. In the best of the cases, cities stimulate markets and business development, facilitate trade and offer platform for where most products are tested and sold and where a lot of the research and development is transferred and marketed (Sachs, 2015). The high density nature of urban cores serves as incubator for social innovation providing ground for creativity and the generation of new ideas. However, despite the high potential for economic and social innovation, cities face critical challenges from triggers inside and outside the urban realm. There is a continuous struggle for cities trying to strike the right balance between economic growth equitable access to green spaces and land resources of non-commercial value. Among some of the most pressing challenges in urban development that directly impact the development of green areas in European cities include urban sprawl, soil sealing and lack of access to sufficient green space. Innovation in the planning structures of cities requires further work and testing of tactics that can help cities deal with unavoidable challenges including expected Anthropocene-related alterations on the urban climate.

The following paragraphs highlight some of the most pressing issues in current development as well as opportunities from an urban green perspective for creating a more livable and sustainable cities.

Challenges

a) Urban Sprawl: The continuous urbanization growth towards suburban areas remains a critical issue in the development of European cities. Back in 2013, the UN Habitat observed a spread of urban density moving towards areas surrounding major cities, an urban trend that continues to challenge the densification of cities promoting uncontrolled development, landscape and the fragmentation natural capital. In 2006, the report on *Urban Sprawl in Europe: The Ignored Challenge* (European Environmental Agency, 2006) identified urban sprawls as a main threat to the natural environment impacting land and soil consumption. The negative effects of urban sprawl with its ramifications are also known for their high environmental costs ranging from increasing vehicle use and car-dependency in suburban communities, to uncontrolled land consumption with direct impacts on the natural ecosystems (Kahn, 2006). Urban sprawl is in essence the result of poor cohesive planning when insufficient amenity, public safety, and insufficient green and open spaces prompt a decline in quality of life in cities.

b) Urban Compaction: The compaction of urban cores is a challenge in part due to the lack of adequate provision of green and open spaces in growing urban cores. According to the EEA, 2006 it is estimated that by 2020, as much as 80 percent of the European population will live in cities and up to 90 percent in seven countries of the E.U. something that raises many questions concerning not only access to green but also the limitations and the extent to which cities are able to expand sustainably before negative changes in the urban ecosystem start to unfold. The compaction of cities has a direct impact on land and soil resources and in many cities it represents the loss of flora and fauna habitats and the degradation of soil functions (Grunewald, et al, 2018; EC, 2013), urban challenges with serious implications on human health and urban resilience and that put a big question mark on the limits on which cities are able to grow sustainably.

c) Access to Green Space: Land use inefficiencies, uncontrolled development, expansion as well as compaction are urban issues that present multiple challenges in terms of the amount and quality of green space that needs that can be provided for every person lining in an urban core. Inclusive access to green spaces by all groups of society including the elderly people and children is also a challenge as green areas not always equitable in the function it provides in relationship to its direct social environment. Lack of planning in these areas means that urban cores could run short when trying to promote green diversity and well-being. In many cities, corresponding directives identify the minimum and maximum size, the maximum distance and amount of square meters each person should have access to according to baseline requirements. However, trends towards the privatization of public spaces and fragmented planning have shown to have a large impact on land use leading to deficiencies in quality and access to green spaces particularly in challenging urban core environments where access to land is limited.

Opportunities

a) Urban Sprawl: Urban green spaces are essential to help mitigate the sprawling of development when green pockets, parks and green amenities are integrated as part of the overall structured of the city infrastructure helping to create a good balance between green space and gray development. On this, the EEA proposed that development takes a dual approach. With regards to green development, it suggest the implementation of the concept “double inner city development” for which highly dense built up areas are combined with a mixture of conservation concepts including green streets, green roofs and other strategies that encourage accessibility to green. As for gray development, the suggestion of a “dual inner development” approach, introduced in Germany, could support a green space development that is consistent with building activities. Over the course of development, rural areas have been associated with better quality of life than that in the inner city where green and open spaces tend to be scarce. For this reason, the development and vigorous evaluation, mapping and valuation of urban-rural greenery strategies to strengthen nature access in urban cores could open up vast opportunities for new advances in the planning of the livable and attractive urban societies of the future.

b) Urban Compaction: Compaction is a measure known for having positive effects in land efficiency as well as benefits from the concentration of social and human capital. Compact cities use less building area and land resources than the horizontal spatial arrangements of rural development. Compact cities have typically good population density which create benefits through economies of scale, social and cultural innovation. The relationship between land use efficiency and compaction was explained by the UN Habitat, 2016, who found out that cities with high population density have shown to use less land than cities with a declined in population that have shown to have poor land use efficiency. Addressing the crucial role that green and open spaces have in developing multi-functional urban strategy that can offer a wide range of ecosystems services and ensure a more equitable and livable development in densely populated areas thus bringing in new perspectives on the importance of an integrated interplay between urban compaction and access to green.

c) Access to Green Space: However, innovative tools and cross-disciplinary approaches for the effective planning of public spaces requires planning to minimize the impact on land and resources associated with suburban development in periphery areas and also to give good consideration to social, cultural and environmental dynamics processes directly associated with the quality of and access to green space. More research needs to be conducted on the development and planning of green spaces of a consolidated network of green that intersect and interact with the urban ecosystem in a systemic way thus open up large opportunities for sustainable growth. A human-focused approach that takes into account the need for all groups of society to be provided with good access to green, can have positive effects on building a stronger cultural and social capital and more equitable cities.



3. CRITERIA FOR VALUING GREEN SPACES

Green cities are defined as a systematic organization of networks aim to provide clean air, clean water and pleasant streets and parks; and are also resilient to ecological, social and economic challenges (Kahn, 2006). A green network of open spaces is necessary to supports a diverse and healthy land and soil and to allow access to the benefits natural ecosystems provide. A criteria for valuing green spaces involves the examination and valuation of nature design processes and ways in which they can be qualified and quantified exploring their organization, components, benefits and requirements. Because the greening of cities involves strategies that promote biodiversity and the provision of ecosystem services, it is necessary that cities assume a multi-functional; multi-sectoral; and multi-disciplinary approach to fully explore the value of green assets and what they represent in the planning of healthy and livable cities.

A criteria for valuing green spaces requires a comprehensive understanding of the social dimension of public space for meeting individual and collective needs. When considering the definition of ‘public’ space as “a commonality of experience, a general accessibility, something that is open and to be shared by all members of a community” (May, 1998), green spaces are to be considered part of the public space urban realm and as such they require comprehensive planning and understanding of the complexities and priorities of the commons, the individual human dimensions and how they can be translated and expressed into public life.

3.1 Urban Green and Ecosystem Services

The functions of natural ecosystems are best explained from the perspective of ecosystem services, biodiversity, and well-being (Millennium Ecosystem Assessment,, 2005). Ecosystems have primary role to provide humans and the built environment with vital functions. The multiple benefits that our natural ecosystems, and their parts provide from the point of view of ecosystem services (See Image 1) range from, regulating and supporting functions; to cultural and provisioning services important for human health, social wellness, and good life (European Environment Agency, 2010). The lack of equitable amount of (and access to) green space to support human cognitive, psychological and physical functions in compact urban settings, is a challenge for the growing cities of today; therefore, it is imperative that careful attention is given to the value of green spaces and the pivotal role they will continue to play in making cities human-centered.

The basis for the provision of ecosystem services is biodiversity – the foundation of ecosystem services to which humans are said to be intimately linked (MEA, 2005). The absence of sufficient interconnection between natural ecosystems and humans in urban areas is a challenge for city planners mainly due to disproportions in the distribution of land impacting natural resources. In the case of biodiversity, it has already been noted that losses in biodiversity and associated changes in the urban ecosystem have caused a decline in well-being, with some social groups being pushed into poverty (MEA, 2005).

Exposure to nature is proven to have a series of psychological, cognitive, and sociological effects on human life. In one example, the EEA (2010) found that exposure to nature has the potential to reduce blood pressure, improve cognitive abilities, and increase feeling of happiness. In another study of the domestic garden (Cameron, et al., 2012) found that gardening as a pastime is perceived as a retreat connecting people with the sense of ownership, identity and the ability to interact with nature where gardening is presented as an example of the relationship between the properties of greenery and their connection with human health. Studies of the interconnection between biodiversity, ecosystem services and well-being also highlight that biodiversity loss and deterioration of ecosystem services, contribute

(directly or indirectly) to worsening health and to increase food insecurity; vulnerability and the worsening of social relations (MEA, 2005).

The concept of multi-functionality in public space is an important property for scaling-up green areas within the overall urban infrastructure and urban systems. The current strategies for the greening of cities can be applied to a broad range of services for a wider number of people in compact urban areas. Green assets perform a range of functions simultaneously which prompt us to take a systemic approach to a deeper understanding of the wide array of functions and how the scaled-up of nature-related services should be deployed at the macro and micro level scale. Furthermore, the effective connectivity of the green systems across urban and rural settlements would give green infrastructure a more significant role on the land and the value of its natural resources.

Because cities is where the concentration of populations is expected to take place, it is necessary to identify what are the significant trends in urban development that can lead us to anticipate future challenges. Global changes in terms of climate, land use and biodiversity are expected to alter our natural ecosystems. In terms of housing, changes in urban green and gray infrastructure as well as trends in natural capital and socio-economic development are the focus. In Europe alone, the highly urban populations in face challenges with regards to the prevention and management of urban sprawl. Cities will need to consider the appropriate planning of sustainable land-use, regeneration and retrofitting of urban and communal areas with good provision of high-quality of public space and strong preservation of urban green areas for public use if cities are to continue their model of compact urban cores with a strong culture of active urban life.



Image 1: Regulating, supporting and provisioning ecosystem services to the built environment.

3.2 Urban Green and Public Space Planning

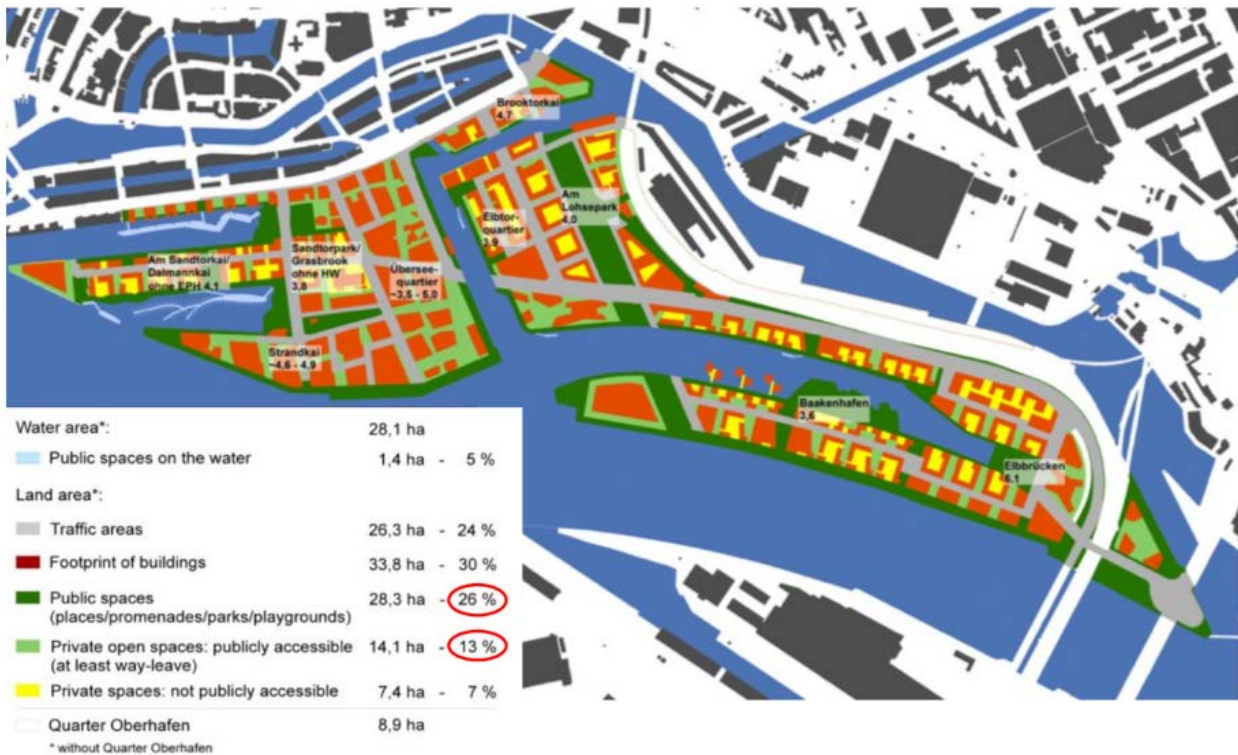
An approach to greening is understood as a set of initiatives aim to integrate more elements of nature and environmental systemic design into the existing infrastructure of the city. The Copernicus Urban Atlas defines green urban spaces as “public green areas for predominantly recreational use such as gardens, zoos, parks, castle parks; suburban natural areas that have become or are managed as urban parks.” Within the urban landscape discourse, green and open spaces consider undeveloped areas (not covered by buildings) either sealed, non.-sealed or green, and primarily for public use (Vienna Urban Development and Planning, 2015). An integrated approach to the planning of both green and open spaces can lead to a more cohesive planning and interplay of functions and expansion of areas necessary for recreation and well-being. In fast growing cities, the need to explore new underutilized spaces in the most compact areas of the city center, is also a consideration for providing good quality of open space.

The way cities plan their green areas is highly influenced by a history of land use coordinated through regional planning directives that have set regulatory frameworks concerning land allocation and land ownership. When considering the subdivision of land in urban areas, green and open spaces can take different classifications from the perspective of ownership i.e. public and private, and semi-private ownership types. The basis of green and open spaces lay on the sharing of communal (public) space usually perceived, in the best of the cases, as safe, inclusive, accessible and supportive of well-being. As a result, one can consider the principals outlined by (McLaren & Agyeman, 2015) on the proposed urban paradigm shift in urban development towards a model of *sharing cities* based on the understanding of the term “well-being” and the connections and urban dependencies that need to be addressed to effectively enhance human capacities for all groups of society. For example, one of the key principles by McLaren’s sharing paradigm (2015) that can be directly applied to the planning of green and open spaces states that:

Systems must be designed from the outset for justice and inclusion in intercultural societies. They must be equally accessible and attractive to those from different groups and cultures – especially those otherwise disadvantaged. They must allow participation on equal terms regardless of background and do so openly and transparently. In other words they require both designing in justice and justice in design (p. 295).

Models for more efficient ways on sharing the public space require consideration of the spatial and the metabolic processes taking place in a particular urban core. The case for semi-private spaces with shared ground space ownership could be one element of a combined strategy for how to create public spaces that are flexible in purpose allowing a good flow of pedestrian traffic at the street level. For example, according to the HafenCity Hamburg GmbH, the current planning culture for this new development was purposely oriented towards a diversification of open spaces to promote a flexible design (See Image 2).

In the acquisition process of the urban regeneration project, HafenCity, high priority was given to the planning of public space with diverse features. The management office of the development required that building owners allow the general public access to their courtyards, passages and ground level areas during regular business hours. Ultimately, the aim was to promote HafenCity’s new spatial concept as a “City of Parks and Promenades” and to suggest a new urban structure prioritizing wide access to green open spaces and interaction density (HafenCity GmbH, 2017).



*Image 2: Land Use Approach: High Percentage of Open Spaces.
(Source: HafenCity Hamburg GmbH)*

From a planning perspective, the HafenCity project was based on an innovative approach to urbanity extending Hamburg's city center by an additional 40 percent while focusing on land use efficiency and interaction density, walkability, social diversity, and multi-dimensional sustainability-some of the actions that have contributed to the identity generation of HafenCity as public space (HafenCity GmbH, 2017). The approach to work with public space required that the new streets and open spaces to represent the continuation of the port culture that is open and inviting in character. The new standards set to ensure the equitable distribution of space were represented in the amount of area allocated. In the HafenCity, public spaces (including promenades, parks and playgrounds) account for approximately 26 percent of the total 157 ha of land, and private open spaces that are publicly accessible account for about 13 percent. Road areas are estimated to take only 24 percent. In essence, the HafenCity's development was conceived from the idea of a sustainable city; that is, providing sizable amounts of open areas for public use and walkability, high density and diverse building types and less space for road (car) infrastructure. Intersecting the different open and green spaces on the ground include neighborhood concepts that combined horizontal and vertical mix of uses through a subdivision of neighborhoods, each one with its own unique character (Bruns-Berentelg, 2013). Creative public spaces at ground floors and include combination of local amenities and spaces for public encounter (HafenCity Hamburg GmbH, 2017).

However, the individual categorization of green and open spaces differs from city to city. Areas can be assessed, inter alia, on the local landscape, cultural and social environment, geography, climate, and topography. For example, in the city of Barcelona, the classification of its parts and gardens includes historic, urban, thematic, forest, and horticultural gardens areas and parks. Another approach by the City of Vienna (See Image 3) considers green an open spaces a system categorizing a number of green areas "from a zone system to network system" (Vienna Urban Development and Planning, 2015).

Their result is a 12 open space network structure and local green plan for Vienna outlining the following areas:

<ul style="list-style-type: none"> ➤ Lively streets and pedestrian zones ➤ Greened streets ➤ Streets with adjacent green spaces ➤ Green axes ➤ Green ways ➤ Green corridors 	<ul style="list-style-type: none"> ➤ Open spaces with restricted access ➤ Semi-public green spaces ➤ Parks ➤ Multi-purpose land ➤ Module green space ➤ Protected areas
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Image 3: City of Vienna’s context and visualization of green spaces.
 (Source: Vienna Urban Development and Planning, 2015)

The strategic planning of green and open spaces is progressively taking a new meaning. Green spaces have a central role in the integration of nature biodiversity in urban areas with high density and where there is a lack of connection between people and nature. For this reason, cities are in critical need to reassess the value in fauna and flora and create the conditions for more biodiversity in the city. In the case of Barcelona, only ten years ago, the municipals authorities used to view the presence of invasive animal species (Pigeons and wild pigs), that were moving from surrounding conservation areas to into the inner city, as problems. Today, a paradigm shift in the need to deepen the understanding of the value in nature biodiversity and its role in human health, particularly in urban centers, considers urban biodiversity a must and in Barcelona, authorities are now studying ways to better integrate fauna and flora diversity in urban life. This is how in 2016, Barcelona approved its biodiversity strategy, *Plan Verde y de la Biodiversidad de Barcelona 2020*, as a government strategy to fulfill environmental and social requirements for sustainable development (2013-20).

Furthermore, the planning of urban green networks considers also the *proximity* to green areas. In a study using the Copernicus Urban Atlas data (Poelman, 2016), the spatial distribution of green areas was a key aspects for highlighting the distribution of spaces around blocks. The analysis is a green areas comparison based on amount of population per urban blocks and taking into account distribution and proximity, the lack of nearby green areas and the amount of green surface areas shared within the city boundary. Based on indicators used in planning of green spaces in European cities, proximity to green spaces is generally assessed by areas that could be reached within 10 minutes or less of walking time or a maximum walking distance of 500 meters for 6 square meters per capita of parkland in close proximity to a building.

The planning of an urban green network distribution of spaces will then require a dual approach to both, access and distribution of greenery to fully integrate all the elements of the greenery ecosystem holistically intersecting the urban space.

3.3 Public Participation and Partnerships

Public Participation

The process of greening cities is in essence, a co-creative and collaborative process that considers the value in public and private actors, enterprise and the general public, including all groups of society, as key contributors to thriving and resilient communities.

Public participation and awareness are preconditions for partnerships formation. In pursuing the engagement of citizens for creating multi-stakeholder engagement, it is important to understand not only the laws of communication and how to lead stakeholders in advanced participatory processes, but also that we examine what inspires citizens to act. For example, according to Wilenius (2017), self-expression is becoming more and more important for people in today's society for how they want to organize and achieve things which means people feel the need to be trusted in their capacities to transform systems and contribute to society. Thus, in examining the evolution of participatory processes the trend points out towards self-organizational model that emphasize collective and co-creative social processes. From this perspective, new types of leadership structures seem to be promoting a higher autonomy and responsibility on citizens thus shaping the role of communities in urban transformations.

A society that takes an interest on environmental issues is ultimately more likely to become involved the future development and stewardship of its immediate community. In pursuing multi-stakeholder partnerships, authorities and institutions need to lead literacy efforts engaging citizens in awareness-oriented initiatives that communicate effectively the importance of working collaboratively for a common benefit. Empowerment and participation are two processes that have been found to support public activism. According to Newman et al. (2008), both empowerment and participation are important for making people appreciate the complexity of issues, give a sense of ownership on outcomes, and encourage responsible and caring communities. This means that cities need to consider a wide range of unconventional approaches to vertical and horizontally planning processes in order to fully exploit the potential in social capital for the development and management of urban cores.

In the process of stablishing collaboration with all actors in the participatory process requires that careful consideration for how to integrate private sector, businesses, and community organizations in the management process of green areas. In one analysis of privately-produced public adaptation goods and services linked to public action that included nature-based solutions as a strategy to reduce urban vulnerabilities (Wamsler & Riggers, 2018), issues of whether or not specific forms of interactions between city administrations and citizens could help build foundation for more sustainable climate adaptation were examined.

The study formulated the “effective management of collective and individual resources” as one the key principles to improved support for city-citizens commons-related problems and further stated that:

- Both intentional and unintentional privately-provided public adaptation goods and services need to be identified and supported
- Their identification requires the assessment of individual and public adaptation needs and associated dilemmas
- A combination of financial policy approaches needs to be implemented
- Financial policy approaches need to be combined with non-financial instruments

This approach to develop principles for how more effectively manage collective and individual resources has a direct application in the management process of green areas in complex urban cores. The type of transferability of management and oversight to the hands of the community considering all strengths and weaknesses could potentially increase the impact of urban regeneration projects in cities and towns. More and more, the participation of organized urban associations is giving way to transformation and to the emergence of a new bottom-up management structures and initiatives for greening cities and communities with the solid participation of the public.

Partnerships

Partnerships are necessary for combining the resources needed to execute projects of high social and ecological impact. The development actions for the promotion of urban green infrastructure were framed on a multi-sector approach aim to: 1) Foster innovation solutions; 2) Provide support to public agencies through community involvement-social capital; 3) improve the morale and productivity of organizations; and 4) Provide different partners with different benefits from the same project (Benedict & McMahon, 2006). Stakeholders are the foundation of partnership development; however, the implementation of site-level projects require extensive coordination, capital, spatial and other resources to ensure sustainable and equitable results.

When considering districts inside urban cores, the access, distribution and coverage of green areas is in high demand. By taking a closer look at partnership models in highly dense urban areas, a combination of top-down governance and bottom-up initiatives are necessary for deploying the type of inclusive planning needed tackle societal challenges sustainably as well as to build the necessary cultural and ecologically-responsible communities of users and providers.

Public Sector Partnerships: Public sector pioneered partnerships are instrumental for providing capital and institutional-generated incentives that can stimulate stakeholders and sectors, increase social capital and contribute to community well-being. Public sector agencies can use partnerships to leverage agency’s objectives and orient development towards a common goal. Public sector generated incentives are necessary to stimulate activism and boost effectiveness. On this, mechanisms including grants, tax abatements, regulatory allowances, and amendments to zoning that remove impediments are some of the mechanisms that could open up opportunities for the scaling-up of strategies and stimulate interest. Public sector interventions can help deploy specific criteria for moving an urban sustainable development agenda forward. For example, in the New York City Green Infrastructure Grant Program-2012, criteria in the form of suggestions was included as part of a grant application process encouraging applicants to submit proposals that could: a) Be widely adopted; b) Promote education and community involvement; and c) Support economic development and job creation. This criteria has an effect on creating incentives for owners and providers of goods and services building a nexus between economic, environmental, social, and overall well-being approaches.

Private Sector Partnerships: The participation of the private sector is an essential aspect of urban transformations. Many greening projects seem to evolve from highly collaborative environments and as a result of a dynamic partnership structure that contributes to their longevity and impact. Table 3 outline

instruments that can be useful for scaling-up private sector participation in urban green development projects through partnerships.

Opportunities for scaling-up urban green through private sector participation	
INSTRUMENT	FOCUS
Spatial Planning	<p>Underutilized/Unused Space</p> <p>Vacant alleys, parking lots, streets, pockets and any underutilized space can be a resource in compact urban areas where space is limited and the cost of land is high. Spaces could be repurposed through Innovative programming designed to expose new functions like for example the revitalization of laneways in Melbourne where back lanes and small streets are now the focus of the national tourism campaign, “Lose Yourself in Melbourne.” Or the example of Barcelona’s superblocs where complete blocks are being transformed into communal squares in response to the city’s scarcity of green spaces, environmental as safety problems. Both of this strategies present a gain-gain situation for both city and community.</p>
Programming	<p>Long-Term and Short Term Planning</p> <p>Solutions that take into account a multi sector approach to problem solving should include both short term and long term strategies in line with the realities of the urban environment and the needs of the sectors. Long term planning needs to react to changes in urban demographics, social and ecological challenges. Inclusive and diverse programming would be key for supporting tool to attain long-term goals that can benefit the largest number of people possible and attract the larger number of partners thus ensure projects are sustainable and scalable.</p>
Environmental Literacy	<p>Learning Institutions</p> <p>Green literacy is an important concept as part of strategies that support further understanding of the importance of nature capital by supporting communities and groups. Universities, academic organizations and innovation labs could leverage human capital to obtain and create benefits by extending the curricula of environmental programs, promoting R&D, stewardship, and developing on-site labs for the research and monitoring of urban green assets.</p>
Economic Development	<p>Innovative Financing Schemes for Public Support</p> <p>Partnerships and ventures between the finance sector, non-profit institutions, businesses and government are opportunities for urban innovation and public financing in the scaled-up of initiatives to increase access to green. Benefits derived from a cross-collaborative process offer multiple benefits and should be planned for the purpose of benefiting the largest group of people possible. Projects with a strong social purpose could offer social services social financing powered by private sector institutions in partnership with public institutions. Cases for Innovative social financing could represent advantages for local organizations (managers); local governments (facilitators); and financial institutions (donors/investors).</p> <p>Job creation</p> <p>The implementation of initiatives can help generate opportunities for job creation. For example, In the case of urban farming, further business opportunities can be possible through Community Supported Agriculture, retail distribution and programming contributing to generate jobs and opportunities for training and voluntarism, a key aspect for creating and maintaining sustainable communities.</p>



4. PERSPECTIVES ON GREENING THE CITY: CASE STUDIES

As the symbols in the above picture point out, the perspective on greening the city is a wide one: First, it contains, naturally, the using of green elements in its various forms. This is not only about green in parks. It can be a question of how to bring in the concept of an inner garden, or an archipelago culture, into the heart of the city. Second, green is also about learning: the secret of all living creatures and in studying their individual and collective properties, their role in the ecosystem and, increasingly, the benefits they create for all human beings. Third, green means playfulness. Green spaces provoke gaming and playing of different sorts. For kids, forest can be the most exciting place in the world as well as little playground in the middle of the city. Fourth, green calls for companionship and love. Be it a little picnic or just friends coming together, green can provide platform for social events. Fifth, green environments are also good for the mind. Nature supports mindful activities. The organic forms of nature have always inspired renown artists, architects and scientists in search of inspiration. And lastly, nature connects us more widely to our world and its biosphere. Green areas in urban settings serve as a reminder of our connection and responsibility to the global environment as a provider of the needed oxygen for all of us to breath and thrive.

To support the investigation of across the board innovative strategies and solutions to green-related challenges, the following chapter compiles a series of case studies from five different cities specifically selected for their strategies and transformative approaches to greening. The examples offer a view of win-win scenarios for greening in highly urbanized areas. Mainly, the strongly make reference to the importance of the social layer in addressing needs. Further, examples of public-private partnership and innovative financing are given. Across the board there is a strong emphasis on community-generated initiatives to multiply the impact and participation of the wide community into the overall process. The different cases are meant to give an understanding of the opportunities but also the shared challenges that cities face when tackling issues locally. Collectively, the case studies expose the unfortunate trend of the decline in availability and adequate distribution of green spaces in compact areas.

Overall, the case studies were distributed across the continents of Europe, North America and Australia analyzed from the perspective of trends. Across the board, we have observed how cities are making steps to greening communities not only to address ecological advantages but also to emphasize the urgent need for systems transformation to a more flexible, agile and diverse urban ecosystem. The information used to describe the different projects was collected through various meetings with the corresponding city officials, experts, planners and organizations supported by on-site observations and interviews that were carried out with different organizations, owners, experts and representatives of the associated with the different projects.

The six profiles (case studies) were evaluated from the perspective of spatial, economic, and social qualities as the following:

- Europe – *Spatial and planning qualities*
- North America – *Economic qualities (Partnerships)*
- Australia – *Social qualities*

From a European perspective, the HafenCity development in Hamburg and the *Superblocks* program initiated in Barcelona both are examples of design approaches for how to transform the complex *spatial* urban infrastructure through innovative planning placing high importance on the role of public space efficiency and by proposing the reclamation of green space for public use. In the North American cases, the Brooklyn Navy Yard rooftop farm in Brooklyn-NY and the Gil Hodges Community Garden urban transformation project both bring out the positive effect that innovative *partnerships* could have for

stimulating private sector participation in the scaling-up of initiatives. As examples of public-private partnerships, these two case studies give an understanding of the significant impact multi-sector collaboration could have on improving communities and in moving societies towards a common goal. Last, the two case studies from the Australian cities of Sydney and Melbourne, the Greening Your Laneway project and the Freshwater Community Garden project highlight the importance of public participation and empowerment for creating greener cities and for tackling pressing societal challenges in growing urban cores. Stimulating public participation can be a powerful tool for social innovation when emerging bottom-up local actions take place as part of a response by the local residents to the need to protect and preserve the public right to green space.

4.1 The HafenCity Urban Development – HAMBURG



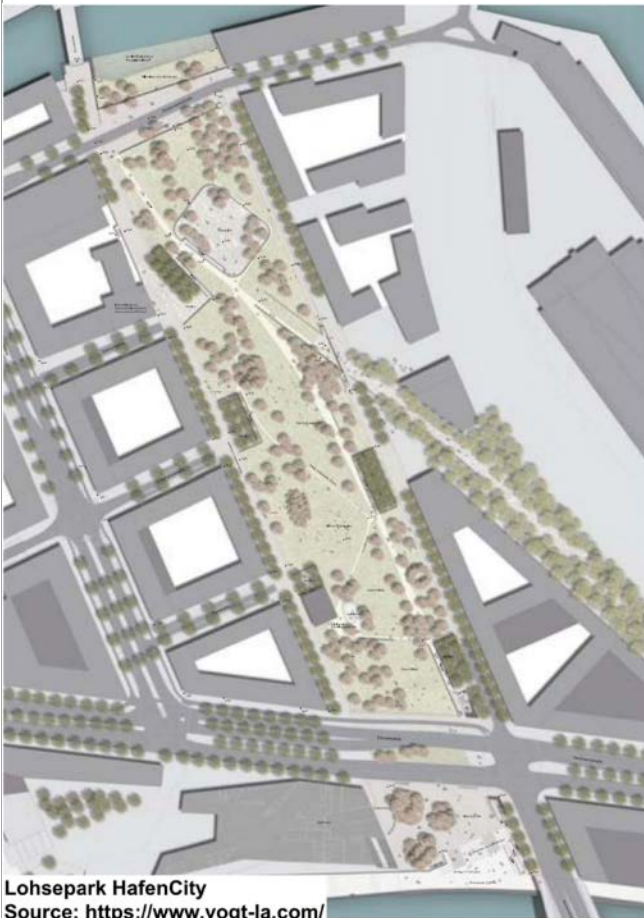
A City Center Expansion and Urban Innovation Project

The HafenCity, “A City of Plazas Parks and Promenades”

Overview: The HafenCity development project is Europe’s largest inner-city development conceived as part of Hamburg’s strategic vision for “More City in the City” prioritizing land use efficiency for sustainable urban growth (HCH, 2017). Hamburg is a growing city of approximately 1.8 million people and it has been estimated that its population will continue to grow until 2030 as the city attracts more people to live and work (Ministry of Urban Development and the Environment, 2014). To channel existing growth the city is redeveloping underutilized areas unifying the port and the center of the city through the HafenCity development. The HafenCity is essentially is an urban transformation challenge with a focus on promoting quality of life and a new urbanity in a part of the city center where land availability is scarce. The project has a strong approach to land use efficiency prioritizing access to adequate amounts of open and green spaces for public use. The

development covers a total land area of 127 hectares from which 28 ha (25%) are allocated for parks, public squares and promenades while an additional 13.8 ha (13%) is comprised of private open spaces that are publicly accessible. The total area of the HafenCity development, 157 hectares (including 30 ha of water) contributes to the expansion of the city center by approximately 40 percent (HCH, 2017).

Concept: The underlying concept of the HafenCity project is urban sustainability. The master plan was strongly influenced by the creation of a new type of urbanity and a new culture of uses and users of public and semi-public spaces. The mixed-use development is multifunctional and prioritizes open and green spaces in a system of parks and promenades with programming designed to interact with building uses and users. The key design influencers of the space are the proposed new standards for land use efficiency and interaction density, walkability, cultural and social mix, attractiveness and livability at the center of the city.



Lohsepark HafenCity
Source: <https://www.vogt-la.com/>

Spatial qualities of green spaces: The HafenCity project integrates a series of green and open space concepts with diverse uses and functions that complement the equally multipurpose mixed-use buildings surrounding its parks and promenades. The largest continuous green space in the HafenCity is the Lohsepark Park. The park covers 4.4 hectares of area and it was designed as an axis of green to connect three core dimensions: urban; water; and green. The design process uses a human-centered approach in that it incorporates a variety of urban, social and ecological functions to address the needs of the different groups using the park. For example, the spatial design gives consideration to the different building uses on the ground floor like corporate offices, kindergartens, gastronomy, retail, mixed housing, etc., and it goes on to include playground areas for children, street basketball/football courts and other recreational spots for the enjoyment of the outdoors by all residents. One important aspect of the human-centered design

principles that were applied to the planning of green and open spaces at the HafenCity, includes the participation of residents during development phase when parents and children contributed to the co-creative process of designing the playgrounds and recreation areas for the children. These approaches are important for attaining effective results with respect to community building and to ensure a more diverse and universal design approach to the planning process of green and public spaces.

The HafenCity development is in essence a multidimensional model for future societies in a port city that wants to grow economically and also sustainably. When fully completed, the HafenCity should demonstrate the advantages and also expose the shortcomings that bold and innovative approaches can bring in to the transformative processes of urban cores and for building the kind of sustainable communities to help cities and societies advance.

4.2 Superblocks – BARCELONA



An Urban Transformation and Redefinition of Green and Public Space

Barcelona Superblocks, “Let’s fill the Streets with Life”

Overview: The Vision for Barcelona in 2050 is a city where nature and urbanity interact and enhance each other. The Superblocks (“Superilles”) is a government stimulus program that deals with the pressing need to intensify access to green space in complex urban cores and address the growing inconsistencies in terms of land use coupled with deteriorating human and environmental health. The program supports Barcelona’s *Citizen Commitment to Sustainability 2012-2022: For a More Equitable, Prosperous, and Self-Sufficient Barcelona* (Council, 2012) and as part of the stimulus program: *Towards a Green Infrastructure for Barcelona* (Barcelona, 2017). To meet these objectives, Barcelona has set out the target of providing 1 m² of green area per inhabitant by 2030, this means that from 2015 on, an increase of 10.67 ha of new green areas need to be created in the city every year. However, the lack of additional space and the compact urban distribution of Barcelona raises the level of complexity when trying to expand the green space area into the various core districts of the city.

Concept: The superblocks is a public space reclamation program that supports Barcelona’s initiative: “Let’s fill our streets with life.” The plan has a multi-perspective approach that combines, urbanism, mobility and urban ecology as core elements to help transform the function of the street infrastructure of the city into a more human-centered environment. The projects aim to create solutions for various social and environmental challenges including child obesity and the tendency towards sedentary lifestyles by the younger groups. The concept has important implications as it deals

with two fundamental issues: a) the urgent need to reclaim access to more public space for the enjoyment of citizens; and b) the need to increase the amount of green area per inhabitant. To reach this goal, the proposal for the implementation of superblocks calls for a series of innovations at the neighborhood level to: recover public space core functions for citizens, and to add more and better distribution of green spaces.



Spatial qualities of green spaces: Superblocks are defined as an urban unit of approximately 400m by 400m considered larger than a square block but smaller than a neighborhood with streets prioritizing urban life, the experience of stronger human-nature connections, social activities and the enhancement of passive means of transport like walking and cycling (Barcelona, 2017); (Rueda, 2016). Essentially, the initiative brings attention to the fundamental role and function that green and public spaces play in society, what defines them and what their relationship is with the social use provided in the current urban environment. The superblocks program proposes the reclamation of the public space to meet the needs of the community. The initiative is call to rethink the functionality of streets and how they can redefined as *public* spaces to enhance urban life parting from the perspective that public spaces are essentially what makes cities to come alive. Spatial qualities here proposed make the case for the reinvention an extension of our private spaces in dense urban cores. The superblocks considers a paradigm shift in the value and distribution of greenery as ubiquitous functioning communal spaces where people could interact and engage in social activities and where new forms of urban life can be forged and integrated as part of the landscape of the city.

4.3 Gil Hodges Community Restoration Project – NYC



A P3s Social Innovation and Livability Project

Overview: The City of New York is one of the most populous cities in the United States. Access to green areas in the city is limited and in some neighborhoods people need to commute in order to have access to parks and green space. The Gil Hodges Community Garden is a community and social resilience project aim to transform neighborhoods where access to green areas is inadequate using innovative partnerships and co-development strategies for its implementation. The project is a model of public funding support and receiver of a grant by the U.S. Department of Environmental Protection (DEP) as part of the agency’s green infrastructure program to improve water quality and a Garden Program for bio-education of the local community. Besides its ecological component, the project is guided by a strong social purpose to create solutions to multiple issues concerning livability in compact low-income areas; also placing a high importance on educating communities across groups and social classes on the importance of community and nature connectivity. However, across projects funding has been identified as a major challenge in greening urban cores. Because of the dominant role of the business sector in urban development, including land ownership, designing solutions that stimulate public-private partnership formation could be a determinant factor in the transformation of public spaces and towards greener and more functional spaces.

Concept: The project concept is based on aspects of social and environmental responsibility. The installation provides a number of functions and benefits for the partners and the community involved. For the non-profit partner, the community garden offers opportunities to improve the public space and to add amenities and recreational functions and areas where people could spend time and share activities like growing vegetables. For the public water authority, the location of the project was an ideal opportunity to control water runoff and prevent contamination of the adjacent Gowanus Canal.

For the corporate partner, the goal and motivation to participate was centered around the company’s philanthropy efforts to build sustainable communities in priority areas where they operate (Vanterpool, 2013).

Partnerships: The Gil Hodges community garden was conceived by means of innovative partnerships that made the project possible for the project to get funding and provide long-term management. The project uses a private-public partnerships (P3s) approach that combine efforts from three main organizations:

- The New York Restoration Project (NYRP), a non-profit charitable organization in charge of the management and communication aspects. The NYRP is committed to restoring, renovating and maintaining parks and community gardens different areas of the city where demand for land is high, green amenities are deficient and livability and well-being at low.
- The public water utility, the New York Department of Environmental Protection (DEP), the local government agency in charge of the city's water quality management and monitoring. The DEP works in partnership with other agencies including the Housing Authority, the Department of Parks and recreation and the Economic Development Corporation building public partnerships to tackle issues concerning storm water management.
- Jo Malone London, a corporate sector partner and leading manufacturer of cosmetics globally. According to the ELC CR Report, 2012, part of the corporate philanthropy efforts by Jo Malone London (a subsidiary of ELC) is was to work with communities worldwide to generate and improve green spaces. The garden program made part of an effort to provide opportunities for people in need through fostering social inclusion, promoting physical and mental health helping communities acquire new skills as pathways towards self-sufficiency (ELC CR Report, 2012).

The NYRP is the responsible partner for the long-term management of the community garden. To generate funding, the organization builds relationships with corporations, other foundations, government agencies through a dynamic programing oriented towards the involvement of corporations and the business sector to scale-up their efforts. Some of their program initiatives include The Corporate Partner Program and the Corporate Volunteer Day.

Further representation and understanding of the power of networks and partnerships for designing solutions to address social challenges is needed. Whether the purpose is connectivity, education, or relaxation, urban pockets, parks and communal spaces need to be rethink to benefit the whole.

4.4 Urban farming: The Brooklyn Navy Yard Rooftop Farm – NYC



A P3s Urban Farm Innovation Project

Overview: The Brooklyn Navy Yard rooftop farm is the largest soil-based rooftop farm in New York City located on the rooftop of the historical and shipbuilding facility, the Brooklyn Navy Yard. The farm has a total area 6.039 m². In 2013, the borough of Brooklyn was estimated to have the highest concentration of industry and manufacturing in the areas of food, beverages and raw materials than any other district in New York City (New York City Economic Development Corporation, 2013). The rooftop farm was an extensive installation and public-private partnership that combined business innovation with social and ecological objectives. The farm model of operation was based on a people-planet-profit approach which means an operation with environmental and sustainable qualities; of benefit and opportunities for the community; and profitable and economically self-sustained. The farm was supported by public financing and received the largest public grant given by the Department of Environmental Protection (DEP) for its contribution to the green infrastructure development plan for the city and its strong community-oriented program.

Concept: The business concept was an entrepreneurial and urban innovation model for a rooftop soil-based farm deployed at one of the most dense and industrial districts of the city of the New York. From a *business* perspective, the Brooklyn Grange Farm uses a triple bottom line business approach in the planning and scale-up of their innovative rooftop level farm concept. From a *social* perspective, the project has a creative approach to urban agricultural prioritizing underused areas and providing local communities with access to locally produced fresh vegetables. The farms grows fresh tomatoes, salad greens and other vegetables to be sold to local retailer and restaurants. The *environmental* commitments of the farm are met through rainwater retention from green roof technologies incorporated as part of the farm roof installation in order to meet the environmental objectives by the local water authority and main funder. The sustainability aspects of the farm are also represented in its dynamic programming that offers corporate retreats, children and adults

farming education to the community engaging people in the culture of farming and communicating the importance of locally grown fresh foods.

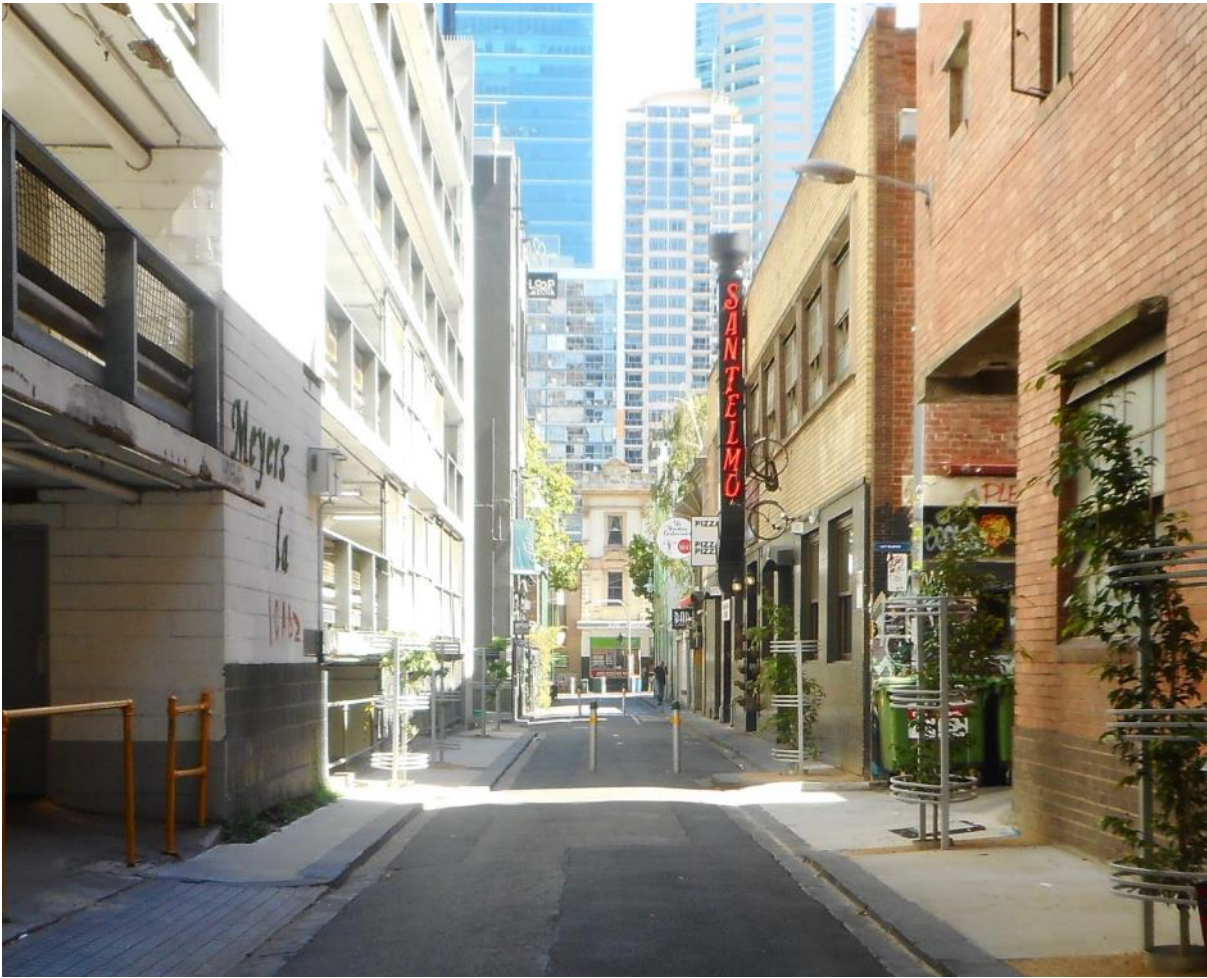
Partnerships: The public-private partnership ventures that were established to pool the resources needed for the project included three main players: the building owner who is the Brooklyn Navy Yard -Development Corporation (BNYDC); the Department of Environmental Protection (DEP) that contributed with a public grant; and the farm owner and operator, the Brooklyn Grange (Plakias, 2013). As a farm operator and to receive funding, the Brooklyn Grange was required to cover for its own operations and maintenance expenses of the farm and to ensure profitability. The project was able ensure its own funding through three main sources of revenue partners:

- Wholesale retailers
- Restaurants and cafes
- Community Supported Agriculture (CSA)

The CSA is part of the long-term plan for the farm and a major source of revenue. Under the CSA program, members pay a fee to receive the equivalent to 10 pounds of produce for 18 weeks. In terms of the programming the farm created a diverse list of activities and events to involve children, adults, volunteers, corporations and private sector partners raising public awareness of the issues of local access to vegetables and greens. On the aspects of educations, the farm offers special programs to educate children in addition to farm tours, corporate retreats, and adult workshops and seminars. Additional programs include training for farmers and minority groups.

The Brooklyn Grange rooftop farm is a demonstration and community-oriented project of urban agriculture that clearly push the boundaries of innovation in the field of green planning creating large impact and a sustainable fam model with the support of a dynamic mix of partners transforming the urban landscape and presenting a more diverse range of benefits for people, businesses and the environment.

4.5 Greening Your Laneway Project – MELBOURNE



Transformation and Greening Adaptation of City Center Lanes

Overview: The *Greening Your Laneway Project* aim to support the City of Melbourne vision for more diverse, resilient, and healthy ecosystems to improve the environment and wellbeing of the community and the foundation for a livable city. Melbourne is facing two major challenges in the history of the city's development: Climate change and accelerated urban growth (Melbourne, 2017). Within its municipality, the population of Melbourne is expected to double over the next 20 years and it has been estimated that the population of Greater Melbourne will also double from approximately 4.5 million in 2016 to 8 million in 2055. The progressive increase in population density is expected to increase pressure on the allocation of resources, the natural and the built environments, provision of services and the urban population. As the city prepares to adapt to the impacts of a growing population, it becomes necessary to conduct a detail analysis of the space design and land use efficiency to maximize the areas of intervention for urban adaptation in sustainable development.

Concept: The greening of laneways around Melbourne is a concept for transforming existing lanes into green spaces by using a combination of greening elements like tress, planting boxes, climbing plants and green walls as well as a monitoring program to evaluate effectiveness.

The laneway projects is essential to meet livability targets since they represent the non-commercial and more free and improvised part of street life. The study looked at various strategies including

ground floor activation, small bars as well as the integration of public art and the local businesses into the development and execution of the program.

Social Qualities: Lane spaces are back-of-the-house spaces typically elongated narrow streets that are few meters wide and highly challenging to develop in terms the commercial use; the functions they generate; and the practical role that they play as part of the overall urban space. Lane uses are usually parkways and alleys of waste bins storage and back of the house dirty operations from restaurants constrained by lack of flow and attractiveness. By turning challenges into opportunities, the City of Melbourne has been able to transform its Central Business District (CBD) into a vibrant destination by activating these constrains spaces into iconic spaces of destination for visitors and residents. In a study conducted by Six Degrees Architects on the transformation of Melbourne's CBD, there were two factors identified as contributors to the success of the laneways. The first is the top-down strategic framework provided by the City of Melbourne including reduction in traffic, strong building design policies in support of active streetscapes, and support for bars through regulation allowing new types of liquor licenses for small bars to operate and promoting spaces and buildings that incubate special concepts thus enlarging the business ecosystem of the city center. The second factor concerns the emerging properties embedded in the approach to develop the city laneways in which the community and not the city give rise and character to the physical dimension of the lane spaces. That is, local businesses, artists and entrepreneurs ultimately being the architects of the emergence and activation of the laneways.

The transformation of laneways into green spaces in Melbourne is an important demonstration of the evolution of collaborative interactions that should be consider for stablishing a stronger relationship between stakeholders while at the same time adding significantly to the identity and the value of the city. The City of Melbourne job of facilitating the emerge and activation of diverse and small businesses were important steps to stimulate vibrancy by turning local challenges into opportunities. The examples of the lanes in Melbourne bring focus to the importance of preserving small scale business community to sustain support the local identity at the city core. The concept is also a wake-up call for planners in future challenges cities will need to face in high-rise development models that prioritize economic gains and profits over low-rise community- oriented buildings that offer residents opportunities to meet and participate in the making and keeping aspects of their neighborhoods.

4.6 The Freshwater Community Garden – SYDNEY



Greener Spaces for Greater Communities And Local Bottom-Up Initiatives

Overview: The Freshwater Community Garden is a community-initiated project aim to bring focus to the impact of excessive development on medium density urban areas in close proximity to the sea, facing high cost of rent putting local communities at risk of transition. The project emerged purely as a bottom-up organized initiative pioneered by local residents to join efforts for counteracting the effects of rapid growth in their blocks. The project was established as part of what is now called the Friends of the Freshwater Inc. a grass-roots organization in area of Manly, Sydney. With the support of the local council, the organization gathered the resources needed to acquire the space where the Freshwater Community Garden is based today. The project contributes to sustainable development actions and creates platform for addressing critical issues of uncontrolled development in sensitive communities where development and economic interests take over green spaces to replace them with buildings. At the city level, Sydney is in the process of transforming its city center into a more nature-oriented center. But, the allocation of space for green areas constitute a challenge. For this reason, the city has turned over to residents to revitalize sidewalks into gardens. The city is also working on strategies to regulate the building height effect on density; decrease the travel distance to green spaces within the city center to 5-minutes or 400 meters; and to significantly increase the percentage of green areas. The *Greening the City Strategy Towards a Sustainable Sydney 2030* and *Sydney's Environmental Action Plan for 2016-2016* are among some the actions taken to increase the amount of nature capital in the highly developed areas of the city.

Concept: The community garden concept is based on community activation, voluntarism and stewardship that calls for local residents and volunteers to take charge in shaping the future development of their communities. The project is in essence a process of co-creation and participation where directly impacted citizens act as stewards of their own community adding value by preserving and maintaining green areas for community well-being. On site, residents and volunteers recycle water, do composting, bee-keeping and work collectively in the growing of fruits and vegetables. The project contributes to the development of unconventional pathways in governance for which the local government makes communities and citizens a high priority.

Social Qualities: The Freshwater Community Garden integrates a number of initiatives that promote wellbeing and improves the living conditions of residents of medium-density neighborhoods of Sydney. First, the greening local streets and open spaces is part of the city strategy towards building a sense of flow of between green spaces on the ground. This effect is meant to inspire people to move, to have more physical exercise, get fresh air, meet friend and make new ones. In essence-improve the urban lifestyle. Second, there is a focus toward transforming local streets and sidewalks to increase environmental sustainability particularly lagging districts. For this purpose, Sydney is working with private property owners to help residents living in multi-story buildings to make the most of their space by means of improving the local streets.

Overall, community garden projects create platform for discussing urban issues in sensitive areas contributing with ideas for how to empower of local communities and influence the development process. The project brings focus to the need to importance of nature, human and social capital in the evolution of communities. In this context, the project successfully promote awareness, education, wellbeing and ecological stewardship. Bottom-up approaches of this kind are important for creating new schemes and new communities of engagement that can have a better saying exposing the local realities as communities on the ground. They help promote experimental processes and give a glimpse of how models of social inclusion could positively impact development and access to green spaces in highly developed areas.



5. SYNTHESIS AND SCALING-UP OF GREENING: FUTURE PERSPECTIVES FOR TURKU CITY CENTER

From the diverse greening approaches observed in city centers around Europe and abroad, we draw from case studies and initiatives that we consider relevant to the transformative processes of cities. Our focus was placed on city-level strategies approaching the planning of green spaces in new ways. The individual projects presented give an understanding of trends that appear to be moving towards a redistribution of public space where more and more green areas play a pivotal role and where the need to fulfil spatial, economic, social and cultural goals is imperative.

By using futures studies and weak signals methodology, we have addressed global phenomena and noticed how, in their need to solve local challenges, cities have begun to question their own operating principles and values becoming more flexible at facilitating the emergence of community initiated solutions regarding access and redistribution of green and public space. Furthermore, over the course of this study, further questions have emerged on the overall function of the city centers and the priorities that should be addressed in the course of their development for how to make modern city centers the living rooms of their inhabitants and visitors; enhance passive mobility; and create areas of diverse functionality that elevate the urban experience through a more human-centered design.

Indeed, the guiding question we try to answer with this investigation is: What are the type of innovative approaches and foresight the City of Turku should be presented with in the process of transforming Turku's city center into a more attractive and vibrant place. And how green public spaces can be reimagined through the lens of Turku's vast surrounding natural and people capital.

The following are supporting arguments address the fundamental questions of our study thus assist the city of Turku in constructing alternative future pathways for the development of the city center going forward to bring and enhance the urban life experience prioritizing environment and well-being.

SPATIAL

Approaches to Flexible Design and the Redistribution of Green Public Space: The future of green spaces is undoubtedly changing particularly from the perspective of spatial planning and the social uses of *public* spaces in urban settings. Currently, there is a trend towards hybridity and mixed-use expressed through the consolidation of services, business, living spaces, recreational spaces all in one plane, designed to operate collaboratively giving way to new standards in land use efficiency and new formulations for the meaning of well-being in urban cores.

Through our analysis of projects like the HafenCity development in Hamburg and the Superblocks in Barcelona, there is a tendency towards the reclamation of green and public spaces as part of the commons that is, the public ground is becoming central to the extension of private spaces in dense urban cores and as places where people want to regain more access to for the purpose of meeting others, sharing and creating new experiences. Thus, as flexible patterns in the urban structure of the city continue to expand, public spaces on the ground will also need to be reconfigured to fit the need of their local users. In supporting new approaches in green space utilization, the aspect of human-centeredness in urban design is a consideration particularly with regards to the need to improve the connection between humans, nature and the built environment, engaging the local civil society in the design and planning process for its effectiveness.

IMPLICATIONS FOR TURKU

To improve the commercial districts of its city center, Turku should concentrate on exploring opportunities to improve the spatial relationships between **mixed-uses and their surrounding environment** and undertake a more detail analysis to identify the potential for a more cohesive urban structure on the ground.



In Turku, there is a need to reconsider ways to adopt a more robust **human-center approach** to the design process of green and open spaces addressing needs and better distribution and access by all groups of society particularly elderly and children. This approach can help improve the social structure of the city and build cohesion.



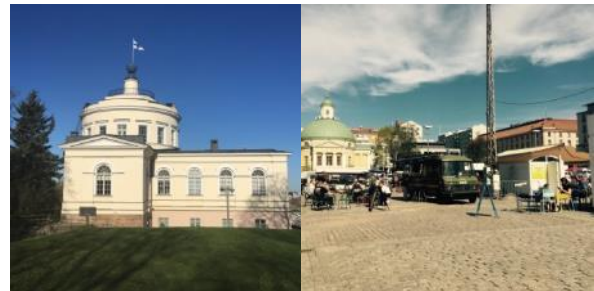
ECONOMIC

Partnerships Empowering Communities of Co-creation: The role of public institutions in guiding the process of development is shifting towards the inclusion of more community-led initiatives and citizen-generated approaches to solve critical urban issues. What has become clear is that the scale-up of the strategies for green development requires participation and a highly collaborative environment of actors, organizations and sectors to contribute equally in the process. The formation of innovative partnerships has shown to be a decisive element in promoting participation in the projects observed. The formation of public-private partnerships is one instrument that has shown potential to bring together communities and government to collaborate. It has become important to consider the private sector enterprise into the development process of the highly economically driven urban cores. For this reason, tapping into the private sector is of importance for creating a sense of care in societies and the share of responsibilities in developing livable cities.

Because access to funding is often a requirement for improvements and an aspects that could hinder development, partnerships are financing mechanisms between institutions and government that offer new ways for private financing to take place through communities can be leveraged as system for social services with benefits for both, government and enterprise.

IMPLICATIONS FOR TURKU:

Turku could obtain benefits from working in **partnerships with its strong sectors like the academic and cultural sectors** building from its strengths to tackle current urban challenges particularly issues of spatial fragmentation and lack of attractiveness in the center of the city. Partnerships between a diverse group of actors, big and small, will help enhance Turku's urban identity and brand.



Stablishing more **private sector and government formed partnerships** will help support Turku's community of care, expand stakeholder inclusion and ensure longevity of the projects combining human resources and capital while at the same time promoting more sustainable approaches to development of the city center.



SOCIAL

Small Actions that Lead to Big Results: Drawing from two case studies, the community garden project in Sydney and the greening of laneways initiative in Melbourne, it is evident how in both cases small gestures have been the model leading to significant results. In Sydney, small is represented in the community of activists and volunteers that with a small level of assistance by the local government, take a proactive role in creating communities of well-being and care. In the case of City of Melbourne initiative for greening the city laneways, the focus was placed on diverse groups of small businesses with high potential improve vibrancy and the economic ecosystem in areas with low potential allowing new and experimental businesses to flourish. Small actions also call for the role of art in the public domain and the need to consider the art and design communities in the planning process of cities. The point about small actions leading to big result is ultimately about addressing the process of social sustainability less focused on centralized standard processes yet inclined towards smaller but mindful strategies for attracting people to the experience of the urban space.

Small-scale approaches can have a large impact. In the context of small businesses taking into account the important role that small businesses have for building diverse and attractive city centers can be significant. Support for small business and creative industries has shown to be effective for creating interesting and unique urban experiences. Essentially, they represent a non-commercial and more improvised part of street and urban life which have proved to be a component for attractiveness. More importantly, the approach to working with small industries, has shown important implications for strengthening urban identity and to counteract the impact of disruptive development affecting urban centers particularly with regards to the establishment of large shopping centers in urban centers and their negative effect on street blocks and on the social structure.

IMPLICATIONS FOR TURKU:

Small interventions that can lead to big result should be further explore in Turku The **use of public art as a strategy to build community and support urban vibrancy** in city centers has shown to be a valuable tool in design-driven cities. In Turku, the mural boxes around the city center can be better represented as public art important to create vibrancy. More resources should be allocated towards the upkeep of these “small” urban boxes speaking loudly of the many voices, from the artist themselves to the city as incubator and generator of creative ideas.



Turku's culture of green is well represented in its inner building structures and the courtyards within them. **Developing programs that bring out unique cultures of care in greening the urban core**, can contribute to small yet impactful actions promoting voluntarism and more active and participatory communities willing to take an active role in the urban transformation.



6. FINAL REMARKS

Around the world initiatives for greening cities are emerging in a big way. The developments we have observed are embracing a new mindset. This is against the fact that cities are dealing with recurrent challenges concerning the loss of green space, resulting from excessive use of land for buildings, streets, and car traffic infrastructure. There is clearly a growing need for new perspectives on how cities will transcend current shared challenges of the 21st century including urban density and the growth of the aging population to completely transform their present state into more resourceful, equitable and human-centered communities.

Achieving results in building a city that is socially sound, of ecological integrity and financially self-sustained is a complex process that requires time and foresight. As we move along in this age of transformation, cities will require a robust support system of creators, doers, managers and keepers and a community of purpose that understands the challenge and takes charge in the face of it. In talking to good number of various actors in the cities worldwide, we became convinced that these groups of people active in urban core development draw inspiration from building a brighter future for humanity, in their own particular context. They seem to be responding to the primary question we need to ask ourselves in the context of cities which is: What kind of city we want to build? The second question that follows is: What are the strengths and values that the city should project? And the third is: How can a city be built from its strengths to maximize, preserve and share those strengths and values with the rest of the world?

All and all, cities need to reconsider their spatial efficiency and the resources that are to be protected, preserved and maximized in order to build a sustainable city. It is not enough to acknowledge advantages, what makes cities stand out. What makes cities unique, is their co-creative processes and educated societies of empowered citizens interested in shaping their own urban realities in a responsible way. It is in the institutions successfully creating the conditions for communities and sectors to thrive and to feel that they can be part of something bigger than themselves, that they themselves are the heart and the spirit of the city.

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