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BUILT ENVIRONMENT

AND ARCHITECTURE AS A RESOURCE

Editors: Minna Chudoba, Ari Hynynen, Magnus Rönn, and Anne Elisabeth Toft

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FOREWORD

Anne Elisabeth Toft and Magnus Rönn

The Nordic Association of Architectural Research (NAF/NAAR) has existed since 1987. As an independent association of architectural researchers, it plays a key role in the discourse of architectural research in Denmark, Norway, Sweden, and Finland.

The present book is the proceedings publication from the association's 2018 symposium, which had the title 'Built Environment and Architecture as a Resource'.

The symposium was organized by NAF/NAAR in collaboration with researchers from Tampere University of Technology in Finland, and it took place in Seinäjoki at the Seinäjoki University Centre 'Frami' from 31 May to 1 June 2018.

NAF/NAAR symposia critically engage in discussing research and architectural knowledge production as evolving practices. They are held once a year. To ensure their dynamic and democratic format, the events are conceptualized and organized in collaboration with various partners and hosted each year by a different university or school of architecture.

Focusing its discussions on a research interest shared by NAF/NAAR and its collaborators, the 2018 NAF/NAAR symposium was dedicated to reflections on how cities, neighbourhoods, buildings, and citizens can become resilient and what role architects and urban planners may play in this process.

During the symposium, twenty-two international researchers presented research papers dealing with different aspects of architecture and resilience. All nine articles in this publication were submitted to a double-blind peer-review process, based on a peer-review template developed by NAF/NAAR—except those by the invited keynote speakers: Matti Kuittinen, architect and senior specialist at the Ministry of the Environment in Finland; Lionel Devlieger,

architect and partner in the Brussels-based collective Rotor;[1] and Ida Andersson, urbanist and human geographer in the Department of Human Geography at Stockholm University and at Örebro University.

As President and Vice-President of NAF/NAAR, we extend our sincere thanks to all of the many colleagues who kindly contributed to the present book. We are very grateful to the individual authors who submitted articles to the publication and to the many peer reviewers who have supported NAF/NAAR and its work by offering their time and professional expertise in reviewing the articles. We would like to express our gratitude to all of these people.

Equally, on behalf of the association, we wish to thank Ari Hynynen, Minna Chudoba, Markku Norvasuo, Satu Huuhka, Jaana Vanhatalo, and Anne-Marjo Panu for successfully co-organizing the symposium and for providing NAF/NAAR with a significant platform for its critical discussions. We would also like to express our profound gratitude to the invited keynote speakers: Michaël Ghyoot, Ida Andersson, and Matti Kuittinen, whose interesting keynote lectures contextualized the discussions of the event.

Finally, in this context, we would like to direct our thanks to our financial benefactors. The publication of the present book was made possible thanks to the generous support of the Federation of Finnish Learned Societies and the Svensk-danska kulturfonden.

Anne Elisabeth Toft
President of NAF/NAAR

Magnus Rönn
Vice-President of NAF/NAAR

NOTES

[1]At the symposium, it was the architect Michaël Ghyoot who represented Rotor.

INTRODUCTION

Minna Chudoba, Ari Hynynen, Magnus Rönn and Anne Elisabeth Toft

With the focus on the Anthropocene in recent years, proposed by many scientists as being our new geologic age—where man's impact on the planet has led to critical climate changes, a shortage of natural resources, and collapsed ecosystems—questions of sustainability and resilience are crucial to the work and theories of architects and urban designers all over the word. For NAF/NAAR and its collaborators from Tampere University of Technology in Finland, the aim of the symposium 'Built Environment and Architecture as a Resource' was to create a platform for discussion on how cities, neighbourhoods, buildings, and citizens can become resilient, and what role architects and urban planners may play in this process.

Many cities worldwide are already in the process of developing resilient strategic frameworks for the future to adapt their physical structures to the challenges of tomorrow. However, the built environment with its infrastructures, buildings, spaces, and landscapes is a sociotechnical assemblage that is transforming relatively slowly. The concept of resilience originates from the natural sciences, but in the 2010s it was applied to multiple disciplines, including architecture and urban planning. It is noteworthy that some definitions of the term 'resilience' suggest that the built environment not only bounces back to its original state after changes, but actually reaches a renewed state, which is even more resilient than the original. According to this idea, the new state should open up new possibilities for better resource efficiency, better economic profitability, better technical resistance, and, most particularly, new opportunities for social regeneration and evolving lifestyles, as well as new cultural values. All of this raises a bundle of questions.

First, what kind of theorizing is needed to meet the future challenges? In order to embrace the built environment and architecture as a resource in society, this issue should be addressed as widely as possible. Traditionally, the city and its built environment are usually understood as users of resour-

ces, but they should also be seen as the producers of new ones. Every site has potential resources—values and qualities—that can be investigated and developed by design. Aside from the economic and material resources, we should include the social ones too. The qualities of the built environment and architecture, as well as people's everyday life, must be identified as important assets in this discussion.

Consequently, in what ways are the possibilities for social interaction changing in today's urban environments? In recent decades, various types of urban activism have brought new life to city cores. Spontaneous pop-up events have sometimes evolved into more organized, regularly occurring happenings. At the same time, citizen participation has reached a level where individual groups may come up with urban planning scenarios that offer an alternative to the official versions developed by professionals. In addition, co-creation has increasingly become a part of the official planning process, with collaborative charrettes and new GIS platforms offering citizens a possibility to voice their opinions. Discussions are continued in the social media, which is thus complementing the traditional urban spaces as a scene of social interaction. Augmented reality is bringing its own layer to this interaction and to the experience of the urban environment. The city is everybody's business, and the ways of participation are constantly developing.

However, is there a peaceful path to the urban reform of our time? The early modernists wanted to break away from the burdens of history and begin a new era of architecture. The transformation of cities in the twentieth century was radical and visible. Since then, architecture has created its own 'modern' urban layers. As we today to some extent use cities differently than in the past, the activities of planning and design have increasingly become replanning, redesigning, and reusing the existing environment. This development is not necessarily linear. The current challenges of sustainability may require just as big of a reform as that faced by the early modernists. One important difference remains, however: instead of adopting a totalizing vision of the city, we have to get along with the existing urban diversity.

Finally, will our current architecture stand the test of time? With cities growing as fast as ever, the globe is running out of vital resources such as, for example, sand due to the cradle-to-grave nature of modern construction. At the same time, buildings are discarded after unprecedentedly short life spans. This obviously unsustainable situation calls for both reactive and proactive

approaches to the way we build our buildings and cities. The idea of circularity fosters the perspective of new architecture that is timeless, flexible, adaptive, and/or structurally designed for deconstruction, relocation, and, eventually, recycling. It also views existing buildings as the undervalued stock of spatial and material resources, with a life cycle that claims to be extended in one form or another.

Based on these initial thoughts and questions, scholars from academia and practice, respectively, were encouraged to reflect on issues relevant to the four thematic tracks of the symposium: 'Theory and Its Uses'; 'Spatial and Social Interaction / Co-Creation'; 'Transition and Time'; and 'Circular Buildings and Cities'. To frame and structure the discussions of the symposium, NAF/NAAR and its collaborating partner had invited Matti Kuittinen, Michaël Ghyoot, and Ida Andersson as keynote speakers. Representing different discursive backgrounds, their lectures, which were developed into articles for this publication, focused on diverse aspects of how society can become more resilient and what role architects and urban planners may play in this process.

'Finding a remedy to the Anthropocene is perhaps the biggest joint effort of the whole of humankind', writes Matti Kuittinen in his article 'Architecture for the Anthropocene: How to Build a Better Future?'. On this topic, the architect and senior specialist from the Ministry of the Environment in Finland gives an account of the complexity of the Anthropocene and the important roles that architects and urban planners play in making our built environment resilient. According to Kuittinen, the global construction sector consumes half of all planetary raw materials. It is also accountable for over 30 per cent of all waste. Furthermore, it is the main end user of many of the products of our heavy industries. Several countries, including Nordic ones, are working towards so-called climate neutrality (keeping national GHG emissions and removals in balance) by 2030 or 2050. However, in most countries the goals for the construction sector have not yet been specified. Kuttinen's article suggests different ways of dealing with this issue. By discussing the background and drivers for the environmental and social changes associated with the Anthropocene, and by reflecting on possible mitigation and adaptation strategies, while using the building norms and architectural policies of the Nordic countries as an example, he puts forward three practical suggestions for the design of buildings: 1) decoupling of functional quality and environmental impact, 2) simplification of building, and 3) strengthening cultural resilience through architecture.

In his article 'Salvage and Integrity',[1] Lionel Devlieger, partner in the collective Rotor, which is internationally credited for its reflective work on the notion of sustainability and the reuse of material from the construction industries, sheds light on the intentions behind Rotor's deconstruction company, Rotor DC. The company was established in 2016 because, according to Devlieger, 'there is a gap in the market for salvaged materials from office buildings: recent, urban, large-scale developments'. But also because he believes that 'in the coming years the reuse of components of existing buildings will become of more and more importance' in architecture. In the article, Devlieger reflects on the history of demolition and the practice of deconstruction, pleading for a careful and slow dismantling of buildings and components with reuse in mind. The article raises important ethical questions regarding the notions of sustainability, cultural heritage, aesthetic value, architectural craftsmanship, the business of demolition, and the reuse of material resources. It puts into perspective the current global industry of deconstruction and its stereotypes, pointing to alternative ways of operating with deconstruction in the future.

The urbanist and human geographer Ida Andersson, in her article 'Building the Green City from Wood? Policies, Practices and Institutional Capabilities in Sweden', discusses the representation of green cities. More specifically, the article critically reflects on the conventions around the representational formats of these cities and examines in what way they and their dissemination tend to shape urban planning discourse in general. Andersson points out that what the establishment often considers 'good' or best practice in urban planning is very much a cultural construct. Andersson, in her article, goes on to describe how so-called 'policy mobilities'—the circulation of policy ideas and models—work and what governs their agencies. According to her, they play an important role in many people's ideas and understanding of green city policies. As a case for her discussions in the article, Andersson puts forward Swedish multistorey housing in wood, and how it is being conceptualized as a solution for building green cities in Sweden. Taking a critical and self-reflexive standpoint, the article aims at illustrating how ideas about the green city are conceptualized and conveyed in urban policy and why it matters for scholars in general to understand how policy ideas and models are formulated and mobilized.

'The Past in the Future: Investigating Values of Circulation' is a contribution by Birgitte T. Eybye and Lars N. Bock. Future commissions for architects can partly be assumed to be in the field of sustainable transformation, according

to the authors. For this reason, Eybye and Bock investigate concepts, methods, and theories that promote a reuse of building materials, buildings, and infrastructures. Learning from architectural history is, in this context, important for both contemporary architecture and the challenges of tomorrow in this profession. The article belongs to the symposium theme circular buildings and cities. The fact that buildings have been modified and transformed at 'all times' is a starting point for the authors. By studying circular approaches in architecture—design for repair, conservation, modification for new uses, restoration, retrofitting, and deconstruction—tools may be redesigned for a sustainable architecture in a future-oriented context. Eybye and Bock examine theories and methodologies of architectural conservation and their potential to promote circularity in the built environment. The authors evolve and test an analytical framework in order to identify values in architectural conservation. Theory and practice are connected in a joint venture; a first step in developing tools and methods on circularity for architectural practice.

The second contribution on circular buildings and cities is an article by Inge Vestergaard and Guillermo Martín Jiménez, titled 'Exploring Secondary Resources in an Architectural Project'. This study examines the role of architecture in curtailing the contemporary overspending of resources. The focus is on reuse, and therefore on secondary resources as opposed to primary ones. The described research has evolved from graduate studio coursework of recent years at Aarhus School of Architecture. The courses were conducted with project-based learning. During the courses, local resource streams were studied, secondary resources were salvaged and mapped, circular sustainable business models were explored, and, finally, a set of design intentions became an architectural case project. The article focuses on the project, which resulted in a historically conscious design, offering new social facilities for a local housing area, while turning salvaged resources into actual building components. The research shows that it is possible to salvage resources directly for new construction—thus, waste can be seen as a resource.

'Campus in Transition: Suburban Transformation and Resilient Urbanity' is the name of the article by Anna Kholina. She explores the alteration of Otaniemi, an area close to Helsinki, designed from 1960 to 1980 according to modernistic planning principles. Her contribution is a part of the symposium theme of transformation and change. Kholina reflects on the objectives behind the alteration of Otaniemi, which is home to Aalto University's main campus along with residential housing. Alvar Aalto

designed the urban plan and buildings in Otaniemi, which are subjects of heritage preservation, making significant changes difficult. The area is also a nature reserve with protected species. This article presents a case study on the attempt by the planning authority to transform a suburban area into a liveable and attractive urban space. Data collection by Kholina was done from 2015 to 2018. The transformation is analysed as a *social production of space* (economic, historical, and ideological forces shaping physical conditions) and as a *social construction of space* (everyday practices and human interaction). The objective for the alteration was to increase density and to plan for social diversity in Otaniemi, which in this case is in line with the strategy of Aalto University. However, the social construction of space requires widening the spectrum of practices, such as community building, inclusive design, and participatory methods according to Khohlina.

The contribution by Ranja Hautamäki and Julia Donner is called 'Park in Flux: Change and Continuity in the Planning Discourse of Kaisaniemi Park'. This article belongs to the symposium theme transition and time. Kaisaniemi Park is a green urban site of cultural heritage. It is one of the oldest city parks in Finland at the centre of Helsinki, established in 1827. Planning and alteration have been a part of the park's 200 years of history. Hautamäki and Donner examine the preservation and renewal of the park in a long-term context, with a focus on three planning phases: the renewal discourse from the 1910s, the design competition of 2000, and the detailed plan of 2007. The competition aimed at redefining the identity of the park and replacing the historical structure. A small, high-quality play park was added to the area. However, the winning design was not implemented. After the competition, a new local detailed plan was developed in 2007 so as to find a new balance between continuity and transition. The article shows how difficult it is to restore a historical urban park in the centre of Helsinki with conflicting interests and different professionals' visions expressed in the design. The preservation of urban parks also substantially differs from the conservation of architectural heritage. Parks are shaped through natural processes. According to Hautamäki and Donner, preservation should include the managing of change in a sustainable way, without compromising the integrity and authenticity of the place. They conclude that old, traditional urban parks do not require 'new clothes or ideologies', but rather careful revival, improvement, and repair.

Two conference articles deal with the topic of temporary use in the city. Dalia Milián Bernal's article, 'Temporary Use of Vacant and Abandoned Urban

Spaces in Latin America: An Exploration', presents various cases of temporary use—from community centres to art galleries and urban gardens—within Latin American cities, from Mexico to Argentina. The historic context is presented as a background in order to explain the contemporary urban situation. The examples are set within a current theoretical debate, using the concepts of everyday urbanism and do-it-yourself urbanism. The latter is particularly interesting, since the projects studied involve citizen-led transformations. The former is relevant in the study due to its capacity for dispelling boundaries between public and private space. The analysis of the twenty-four cases reveals a wide range of uses, achieved through creative transformation processes. The cases illustrate the generative potential of temporary uses, which can in some cases lead to continuing cultural practices in urban spaces. The article indicates that understanding the processes behind temporary uses may eventually generate awareness about the physical, social, and economic contexts of citizen activity.

Hella Hernberg's article, titled 'Mediating "Temporary Use" in Cities: Accounts of Selected Practitioners', focuses on the roles of mediating actors in the temporary use process. Architects and designers often act in this mediator role, the author included. The research is qualitative, utilizing the 'Research through Design' method. The aim of the study is to determine the roles and tasks of mediating actors, as well as to identify their working conditions and contexts. To achieve this aim, representatives of mediating organizations from four different European cities—Ghent, Bremen, Nantes, and Riga—were interviewed. The background of the mediator organizations was diverse, from ones within the public sector to those representing private owners. According to the study, common tasks and concerns of mediation work include managing and building relationships as well as bridging conflicts. Mediation also tends to challenge dominant traditions of urban planning. The study concludes that understanding the role of mediation in temporary use could have an impact on future urban planning, possibly leading the way towards more resilient and adaptive approaches to development issues.

The key questions that formed the background of the discussions at the symposium 'Built Environment and Architecture as a Resource' were: How do we as architects and urban planners define resilience in architecture and the built environment? What does it take to make our cities resilient—now and in the future—and in what way will it change our perception of the urban and its spaces? The compilation of articles in this proceedings publication

presents different reflections on the built environment and architecture as a resource. It addresses how cities, neighbourhoods, buildings, and citizens can become resilient, and what role architects and urban planners may play in this process. It gives an account of some of the many future challenges of society, and it discusses the social and cultural construction of concepts and theories that define society's understanding of resilience in relationship to the design of the built environment. Furthermore, it puts a new perspective on methods and practices being used to predict the future relevance of architecture.

It is the hope of NAF/NAAR and its collaborating partner that the publication will make a qualified contribution to the already existing body of critical work concerning resilience and the built environment and architecture as a resource.

NOTES

[1] This article was previously published in *The Architectural Review* (February 2019), issue on 'Failure', under the title 'Waste Not: Rotor and the Practice of Deconstruction'.

ARCHITECTURE FOR THE ANTHROPOCENE: HOW TO BUILD FOR A BETTER FUTURE?

Matti Kuittinen

ABSTRACT

We have entered the Anthropocene in which humanity is shaking the delicate balance of the Earth. Anthropogenic environmental impacts—especially in the form of climate change—have become an existential crisis for the entire planet.

Half of global raw materials are used for construction, and a third of greenhouse gas emissions are produced by the built environment. Without a radical shift towards a circular economy, our chances for meeting the emission budgets proposed by the UN's Intergovernmental Panel on Climate Change (IPCC) for scenarios in which global warming is limited by either 1.5 or 2 degrees Celsius are not good. This brings architects and architecture to the forefront of mitigating the overconsumption of planetary resources and environmental pollution.

As a response to the environmental, social, and economic turbulence of the Anthropocene, three practical suggestions are made for the design of buildings: 1) decoupling of functional quality and environmental impacts, 2) simplification of buildings, and 3) strengthening the cultural resilience through architecture.

In this article, the background and drivers for the environmental and social changes associated with the Anthropocene are presented. Then, possible mitigation and adaptation strategies are discussed using the building norms and architectural policies of the Nordic countries as an example. Finally, architecture for the Anthropocene will be presented, along with argumentation for why the three suggestions are essential for future architecture.

KEYWORDS

Anthropocene, climate change, architecture, resilience

INTRODUCTION: HUMANITY AS A PLANETARY FORCE

Anthropocene: Our Biggest Achievement

We are living in the Anthropocene—a geological epoch during which humanity has become capable of altering Earth's geological, chemical, and biological composition.[1] We have left markers in the form of radioactive material, heavy metals, and plastic fallout that deposit into sedimentary records. We are moving more soils and minerals across the globe than the forces of nature could do.[2] Each year, we consume raw materials faster than the planet can reproduce. Simultaneously, we are leaving behind us more waste than the planet is able to neutralize through its mechanisms.[3] Furthermore, we have triggered the sixth mass extinction of species.[4] As summarized by professors Simon L. Lewis and Mark A. Maslin, 'the future of the only place in the universe where life is known to exist is increasingly being determined by human actions'.[5]

This new era is also affecting us. Although the planetary tolerance has been high, the consequences are becoming visible. A well-known concept for describing these changes is 'planetary boundaries', introduced by Johan Rockström in 2009.[6] According to the revision of the concept in 2015,[7] the most alarming overshoots to planetary balance have been taken in the fields of genetic diversity, biogeochemical flows, land-system change, and global warming. These overshoots will not only harm nature and ecosystems, but they will have a deep impact on our social and economic well-being.

The time to mitigate many of the negative global changes is getting short if we wish to prevent the irreversible consequences of climate change or mass extinction. As an adaption, many of the processes and functions of our societies may have to change radically. This also applies to the construction sector and architecture.

Climate Change Requires Immediate and Unprecedented Action

The 2018 Special Report by United Nations' Intergovernmental Panel on Climate Change (IPCC)[8] on global warming by 1.5 degrees Celsius has left us with very little uncertainty about the magnitude of the required actions and the hurry to implement them. According to the report, we only have up to twelve years to reduce the greenhouse gas (GHG) emissions to prevent the globe from warming beyond 1.5 degrees. Those simulated pathways that would indicate that warming would most likely stay below 1.5 degrees would require 'rapid and far-reaching' changes in energy, land use, transportation,

and buildings. These mitigation measures would be 'unprecedented' in their scale and speed. In addition, several authors argue that we may need a new economic system that would be more suited to changing the current crash course towards a climate catastrophe.[9]

Rockström and his colleagues have pointed out that there are 'alarming inconsistencies between science-based targets and national commitments'.[10] To set the course right, they suggest a 'rapid decarbonization' roadmap, in which the global GHG emissions should be halved every decade and carbon neutrality reached no later than by 2050. Richard J. Millar and his team state that limiting the warming to 1.5 degrees would 'require a significant strengthening of the nationally determined contributions . . . in 2020'.[11] This way we could avoid enough of the costs and turmoil of global warming.

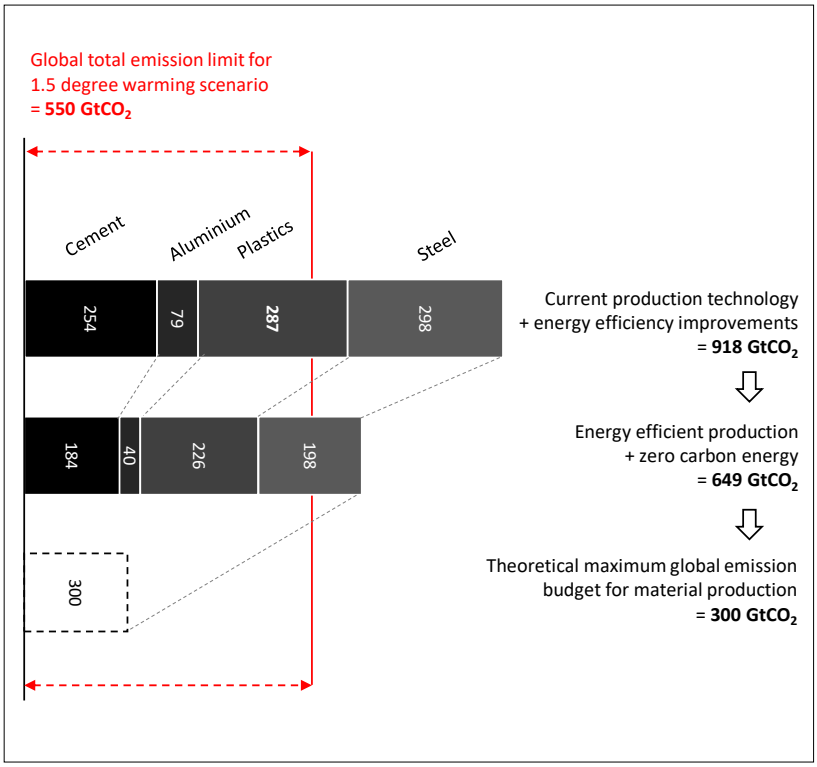


Figure 1. Cumulative greenhouse gas emissions from the production of key construction materials until 2100 and the required emission reductions. Data: Material Economics, 2018.

If we truly listen to these statements, and if we increase the political ambition and quicken the implementation of regulatory measures, then there will be significant implications for construction as well. The global construction sector consumes approximately half of all planetary raw materials, and over 40 per cent of the available primary energy is accountable for a third of all GHG emissions[12] and generates over 30 per cent of all waste.[13] Furthermore, the construction sector is the main end user of many of the products of our heavy industries.

According to a recent report by Material Economics, the consumption trends of cement, steel, aluminium, and plastics are a serious threat to us meeting our climate goals.[14] The consumption of materials for construction may increase two- or four-fold during this century. The GHG emissions from the production of these four materials—which are mostly used for construction—are estimated to reach 920 Gt CO_2 emissions during this century. This is almost twice the amount of the remaining global carbon budget (550 Gt) found in the IPCC report 'Global Warming of 1.5 °C'.[15] In other words, if we continue to build using the current practices and amounts, then we will seriously overshoot the GHG emissions budget, possibly trigger 'dangerous' climate change,[16] and permanently alter the living conditions of this planet.

Population Growth and Urbanism Increase Vulnerability

Growing populations and rapid urbanization add to the environmental challenge. The global population is growing by 1.1 per cent annually. It will likely reach 9.8 billion by 2050 and 11.2 billion by 2100.[17] This growth will mainly take place in urban areas and in developing countries. Most of the required new urban areas are not yet built.[18]

As another collateral feature of the Anthropocene, the changing climate has become a key driver for humanitarian crises and forced migration. Growing populations in dense, urban settlements increase the likelihood of climate-related disasters.[19] This is the case especially in developing countries, in which the institutional capacity for preparing or responding to weather-related disasters is lower than in developed countries.[20] In 2017, approximately 68.5 million people had to leave their homes because of conflicts, violence, or human rights violations,[21] a fact that in many cases can be associated with climate change.[22]

The environmental impacts per capita in urban areas differ considerably. There is no single factor in urban lifestyles that can explain these variations

or define whether urban lifestyles reduce or increase GHG emissions and environmental impacts.[23] Some studies suggest that densification and public transport are keys to more environmentally sustainable results.[24] Others indicate that urban lifestyles, especially in developed countries, may induce more consumption of services, and this in turn can have a negative impact on the environment.[25] Some findings suggest that aspects such as the impact of urban density,[26] regional grid electricity, or water management[27] may be more significant than in residential urban areas.

Evidence suggests that climate change mitigation correlates[28] with several of the socio-economic sustainable development goals of Agenda 2030.[29] However, as pointed out by Ernst Ulrich von Weizsäcker and Anders Wijkman,[30] fulfilling many of the socio-economic indicators of Agenda 2030 may bring much needed well-being to the world, but it could also cause collateral damage by increasing the stress on the environment and by accelerating the consumption of raw materials and land-use change.

The increasing numbers of our populations heighten the demand for our limited natural resources. If we would divide the planetary resources evenly, this would lead to a fundamental reconsideration of many of the aspects of Western society that we currently take for granted. Affordable energy, clean water, and safe housing conditions belong in this category.

How Should Architecture Respond?

As described earlier, the construction sector is responsible for most of the raw material consumption and for a significant share of GHG emissions. Therefore, we can position it among the key drivers of the Anthropocene. Although architects have not designed most of the built environment around us, the role of architecture has the potential for building a better future. In the value chain of construction, someone has to take the lead in suggesting how much energy we can use in buildings. In addition, we have to put limits on raw material consumption in the building, maintaining, and repairing of our building stock. We also need a vision for defining what sort of consumption patterns the cities and buildings we design promote. Furthermore, we should be cautious not to slide into a narrow-minded eco-technological strategy for the built environment in which resource-efficiency and architectural design would end up on a collision course.

It is perhaps a suitable time for discussing what sort of role architecture and architects should take in the global effort of restoring our planet back to a healthy state. According to the architect Kenneth Frampton, living needs 'demand to be met but surely not in such a way as to ruin the world for generations yet unborn'.[31]

ADAPTATION AND MITIGATION PATHWAYS IN THE NORDIC COUNTRIES

The narrative of the Nordic welfare states is often told from the viewpoints of democracy, social sustainability, and clean nature. Indeed, Denmark, Finland, Iceland, Norway, and Sweden are among the global leaders when it comes to environmental accountability. Still, their average per capita carbon footprint of 7.64 is almost double that of the world average of 4.97 t CO_2e (and not even comparable to the average of 0.8 t CO_2e of Sub-Saharan Africa[32]). Is the high Nordic level of accountability enough to compensate for the environmental impacts related to lifestyles and industries? How are the planetary boundaries included in Nordic building regulations?

The Nordic Climate Ambition

If we look at the three most important aspects—biodiversity loss, nitrogen cycle, and global warming—the heaviest normative weight has been on global warming.

Denmark is pursuing seventy percent GHG emissions reductions by 2030 compared to the figures of 1990. As a part of this process, strong initiatives are planned for the transport sector, but emissions from the built environment will also be addressed.

Finland is pursuing carbon negativity (national GHG removals larger than emissions) during the 2040s.[33] However, despite the detailed national energy and climate strategy, there is no exact practical method defined for how these goals should be implemented in the construction sector.

Iceland is aiming for carbon neutrality by 2040.[34] The existing general carbon tax will be gradually increased to support this goal.

Norway is aiming for climate neutrality by 2030.[35] In the Norwegian approach, this requires that the emissions reductions 'abroad' should be equal to the national emissions of Norway. By 2050, Norway aims to become a 'low emissions society'.

Sweden is pursuing carbon neutrality by 2045.[36] As part of a wide stakeholder discussion, the Swedish construction industry has also jointly presented their practical proposal for reaching carbon neutrality.[37]

The environmental policies in the Nordic countries are strongly focused on climate change. Given its timely importance and the wide societal support for its mitigation, this can be well understood. The same applies to joint voluntary policies in the construction sector.

Nordic Construction and Architectural Policies

The Nordic countries have jointly expressed ambitious goals for improving the sustainability of the built environment and addressing climate change. Altogether, 124 companies, municipalities, and public bodies signed the Nordic Built Charter,[38] an initiative of Nordic Innovation, which coordinates cross-border innovation and development in the Nordic countries. This charter consists of ten principles that are aimed at transforming the building sector. Especially the fourth principle, in which the built environment 'achieves zero emissions over its lifecycle', can be considered highly ambitious. This principle would be met 'by integrating smart technologies for resource optimisation and clean energy production in our buildings'. It has not been recorded if any of the pilot projects that implemented the charter actually achieved this. The Charter project has since transformed into the Nordic Built Cities programme (2013–17).

Architectural policies offer an instrument for implementing sustainable development in architecture. These policies are nationally developed strategies consisting of voluntary recommendations, governmental action plans, and normative roadmaps that aim to set the course for architecture. Architectural policies are similar in many countries, and they are being revised regularly to reflect the societal, economic, and environmental changes that have a direct influence on land use and building.

Denmark,[39] Norway,[40] and Sweden[41] place sustainable development as the first priority in their architectural policies, and Iceland[42] places it among the first drivers of its design policy, which also covers architectural design. In Finland, the architectural policy is currently under revision, and the existing policy from 1998[43] does not directly address sustainable development. However, the pre-study for the revision process of Finland's architectural policy[44] underlines climate change and resource efficiency as drivers for the new policy.

If we look at the Nordic Built Charter and the Nordic architectural policies from the viewpoint of the Anthropocene, it appears that the urgency for changing the current design and construction practices is well recognized in them. However, recognition alone does not turn the course. Practical action, way beyond the normative minimum, is required.

BUILDING FOR A BETTER FUTURE

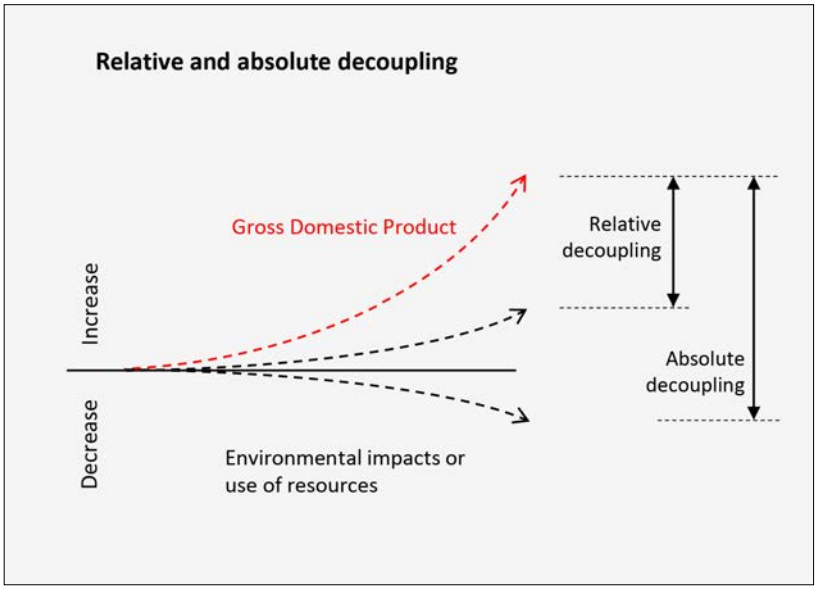
In order to adapt architecture to the Anthropocene, three strategies are suggested for practical architectural action. These are not substitutes for the classic Vitruvian principles. Instead, they offer a new set of priorities that help architecture to empower and facilitate the important environmental, economic, societal, and cultural changes that are facing humanity.

Decoupling Functional Quality and Environmental Impacts

Decoupling is a term usually referenced in the context of resource efficiency and circular economy. Typically, it refers to separating the growth of the gross domestic product (GDP) from resource use. Decoupling can be either relative (in which case resource use grows slower than the GDP) or absolute (in which case resource use decreases while the GDP increases).[45] As stated by Weizsäcker and Wijkman, such 'continued conventional growth leads to massive collisions with natural planetary boundaries' and thus a 'massive decoupling of human well-being from the use of fossil fuels, basic materials, and scarce minerals' is required.[46]

In architecture, however, such decoupling is, in this article, defined as the ratio of functional quality of the building to its environmental harms. Architects and engineers have been trained to optimize the functional quality of a building or structure. However, architects and engineers need new skills. According to the previously mentioned Nordic architectural policies, the importance of understanding and prioritizing sustainable development goals for architecture requires more investment into education. In addition, methodologies for quantifying sustainability, such as life cycle assessment or material flow analysis, are becoming relevant skills for architects.

Relative decoupling improves the performance of a product, a service, or a building within its own definitive system boundary in comparison to alternatives on the market. Nevertheless, for changing the big picture, we need a more holistic approach.



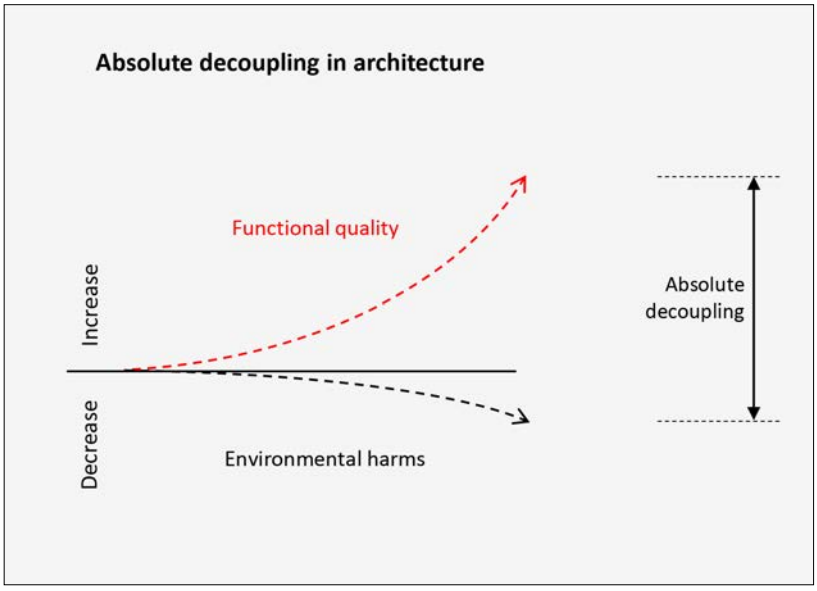


Figure 2. The concepts of absolute and relative decoupling in architecture. Source: Matti Kuittinen

In absolute decoupling of functional quality and environmental harms, we should aim at maintaining or improving the functional level of the built environment, while we simultaneously decrease its negative environmental impacts. This may be difficult to achieve by architects alone, without the commitment from the client side and the entire construction value chain. However, we could consider the normative requirements that relate to, for example, mitigation of climate change as the minimum level, not as the goal after which we need not pursue further improvements.

What should be the ambition for architectural design? If we would design according to Rockström's 'rapid decarbonization roadmap',[47] in a decade we would need to be able to produce buildings that have a 50 per cent smaller carbon footprint than today. In addition, we would need to halve the energy-related emissions every decade. These would not be 'one-off' reductions, but we would need to repeat them every decade. We can imagine that with very ambitious design goals and the full support of both clients and authorities, we could achieve this for new energy-efficient buildings. However, the challenge is that this applies to the existing building stock as well, especially if we are seeking cost-effective ways of retrofitting social housing.

Adopting the key principles of a circular economy may help in this quest. A *circular economy* can be defined as an economy in which 'the value of products and materials is maintained for as long as possible' and in which 'waste and resource use are minimised'.[48] Without a circular economy, the construction sector's chances of meeting climate mitigation goals may become unrealistic.[49] Reusing construction products, recycling materials, and extending the technical service lives of buildings are becoming necessities. Architects should therefore strengthen the dialogue with policymakers and construction companies for solving the normative bottlenecks that hinder the reuse of building products and the recycling of materials.

If we cannot lower the emissions from the construction sector according to the 'rapid decarbonization roadmap', then there are two theoretical options left. Another industrial sector may push its emissions well below zero and compensate for the shortcomings of the construction sector. It is, however, unlikely that any other sector could improve its performance to be able to carry the additional loads of the construction sector. The remaining option is, therefore, that the construction sector would launch a massive compensation effort for offsetting those emissions that it could not avoid. This is

theoretically possible with the help of both natural and anthropogenic carbon sinks. In practice, however, natural sinks (such as soils, meadows, forests, and aquatic ecosystems) are under a lot of stress. Natural processes can only deal with approximately half of anthropogenic GHG emissions.[50] The growing global population requires more land for food production and for settlements. On the other hand, carbon dioxide removal technologies, such as carbon capture and storage, are still expensive, risky, and not scaled up to the required volume of GHG removals.[51]

For these reasons, Jannik Giesekam, Danielle Tingley, and Isabel Cotton argue that 'the full implications of the Paris Agreement for the construction sector are profound, yet poorly understood' and that the construction sector may never reach carbon neutrality.[52] This is an alarming finding, as it leads us to consider how much we can still build on this planet without pushing climate change beyond the point of no return.[53]

Absolute decoupling is, despite of its challenges, the only way towards a liveable planet. Therefore, building designers should 'urgently engage with efforts to depict a net zero emission future'.[54] From an architectural viewpoint, this may include radical design solutions, new design methods (such as algorithmic design and multi-objective building optimization of the building design process[55]), and profoundly reconsidering how to utilize the existing built environment in better ways, without the need to invest energy and materials into new construction. This could have considerable socio-economic impact on the construction and real estate sectors in the short term, but enable their adaptation to the new state of the Anthropocene.

Simplification of Buildings

As a second approach to building a better tomorrow, buildings should be simplified to such a level of complexity that we could be certain of managing them for many years in changing conditions. We should ensure that structures, elements, technical systems, and their combinations are robust and resilient. We can call this *tectonic simplification*. In addition, we should apply simplicity as a design principle to buildings in order to support usage patterns that are less dependent on material resources or energy. This can be understood as *simplicity as a design agenda*.

Tectonic Simplification

Tectonic simplification should cover the architectural design and construction of buildings, building products, structural combinations, and building services. The products that we use for construction may come with a variety of raw materials. As resource consumption grows along with the population growth and consequent construction needs, the availability of certain raw materials (such as oil-based products, certain minerals, or ores) may become considerably limited. Thus, if the products that we assign to a building are not dependent on scarce materials when they need to be repaired or replaced, then the technical and economic service life of that building installation is likely to be longer. Complex products and systems may also include materials and additives that make it harder to reuse or recycle them. Even today, it is surprisingly hard to find out exactly which chemicals or additives have been

Figure 3. Simple and minimalistic buildings. Simple buildings (left) have been made with a limited palette of materials and construction technologies. The beauty of the minimalistic building (right) has required remarkable design and construction effort. It also contains significantly more materials than meet the eye. Photos by Adrien Olichon and Guillaume Meurice.

used in a product. There are thousands of new chemicals entering the markets every year, and we are not sufficiently aware of how all chemicals affect the reuse and recycling potential of building products—let alone their health impacts. Composing the building from a limited array of materials would most likely enable cost-efficiency during its repairs and pave the way for an easier separation of materials for recycling at the end of their first life cycle.

Structures may benefit from simplification as well. One of the distinct features of the Anthropocene is that the weather is changing. This will put additional stress on buildings in many ways. Increased precipitation and moisture content have been noted to change the physical performance of heavily insulated structures,[56] although the mould growth does not always behave according to mathematical growth models.[57] The diffusion of moisture through a structure changes in the interfaces of different layers of materials. Thus, decreasing the number of layers and selecting materials that do not add risk for mould growth may reduce those risks that are associated with changing patterns of rain, wind, and temperature.

Simplification of structures and components may also enable the principles of a circular economy to be fulfilled. The fewer materials and connections there are within a component, the less need there will be for separating layers from each other in such a manner that would keep each material stream intact. For example, contamination of construction steel[58] and additives that are used for many construction plastics[59] are already an important hindrance to their cost-effective recycling.[60] This means that if products were designed and manufactured using fewer materials and additives, their recycling might be more feasible. The same could be applied to deconstruction methods as well, if building parts were disassembled so that they do not become mixed with other demolition waste streams.

The suggestion for simplification is not to say that building designers should develop a romantic escapism away from technology or become dystopically paranoid about the chemical accumulation in our environment. However, as a building should operate for several decades or centuries in an environment that is about to change considerably, then adding an additional level of resilience would hardly hurt.

Simplification as Design Agenda

When describing engineering, the well-known French writer and amateur aviator Antoine de Saint-Exupéry stated that 'perfection is finally attained not when there is no longer anything to add, but when there is no longer anything to take away'.[61] We can apply this reductionist view to simplicity as a design approach as well: Milan Nikolić and Dragana Vasilski describe minimalistic architecture as a journey to an 'irreducible minimum', in which there is nothing to be removed from the design.[62] Depending on the case, we can observe this through the visual or haptic appearance of a building, through its spatial composition, its materiality or its functionality.

We can also consider simplification as an approach for influencing architectural design, production, maintenance, and circulation processes. In this respect, it is very close to minimalism. However, simplicity and minimalism are not synonyms. There is no exact definition for either term in architecture, and they may have similar connotations. We can describe simplicity as producing a non-complex building with ease and little effort. Minimalism may lead into the same, but we can also understand it as a formalistic design goal that may have intrinsic value in architecture. This implies that a simple building may not necessarily look minimalistic and that we cannot necessarily design, build, maintain, or recycle a minimalistic building effortlessly.

As the reductionist approach is one of the distinct features of minimalistic architecture and simplified construction, there is some evidence that it may also apply to environmental impacts of buildings as well. Atsushi Takano has used life cycle assessment calculations to exemplify that the simplification of a wooden exterior wall structure with multifunctional yet simple materials may reduce its overall environmental impacts, and that certain principles of vernacular architecture can be helpful in achieving these goals.[63] Antti Ruuska has shown that if a single-family house is made from massive logs instead of a timber frame, there is a reduction not only in components but also in its GHG emissions.[64]

Although there are not many studies that discuss the correlation of structural simplicity and environmental impacts, the topic is of special relevance. As buildings have become more energy efficient, their life cycle impacts arise from so-called 'embodied' impacts, that is, not from the use of energy and water during the operational use of a building.[65] Especially the use of materials has risen in its relative dominance of life cycle impacts.[66]

There are limits to simplification as well. A building or system constructed from the fewest possible components is not necessarily resilient. The requirement of resilience has increasing relevance to building design. As weather changes, stronger storms, increased precipitation, flooding, extreme heat waves, and higher wind and snow loads may cause more damage to the built environment and its users. Reducing the number of structural layers in an external wall or roof may lead to fewer components having to provide for the same amount of structural safety and stability. For example, weather protection of the external shell of tall buildings may become risky if it relies only on one weather-protective layer.[67] Therefore, additional protective layers may be required. Although this will increase the amount of materials invested in the structure, the benefit is decreased risks and a potentially longer technical service life for the structure.

Thus, we could aim for simplicity as a design approach. In the 'irreducible minimum' the negative impacts of the building would be minimized, its possible positive impacts maximized, and its resilience optimized.

Cultural Resilience

Architecture and Anti-Consumerism

Cultural resilience refers to how our cultural background may help us to overcome difficulties or adapt to changes.[68] Architecture can be a part of culture that builds such resilience. According to Christian Norberg-Schulz, 'since remote times architecture has helped man in making his existence meaningful.'[69]

This longing for a meaningful life seems to be one of the drivers when people adopt anti-consumerist lifestyles and start redirecting their aspirations towards fewer environmental impacts and away from the distractions of a materialist society.[70] Today, this phenomenon is often referred to as 'minimalism' or 'downshifting.'[71] In the 1930s, such a lifestyle was titled 'voluntary simplicity',[72] and in the early twentieth century, 'simple life.'[73] Throughout written history, similar endeavours have been common for many religious, philosophical, or social movements. Notable figures have inspired masses to pursue a simpler and more meaningful life, such as the Christian monks Benedict of Nursia and Francis of Assisi, the Zen Master Ikkyu, the writers Jean-Jacques Rousseau and Leo Tolstoy, and the political leader Mahatma Gandhi.

Does architecture have latent potential for enhancing cultural resilience for the turbulence expected to come along with the Anthropocene? Could we apply it to finding alternative paths for materialism, consumerism, and the linear economy?

Emerging signals suggest that our living environments can play a role in enabling lifestyles in which individuals have less need for defining their social status through the consumption of material goods.[74] As described by the minimalist writer Joshua Becker, 'in a minimalist economy, well-designed, multipurpose, quality-crafted items will be desired and purchased'.[75] Furthermore, the reduction of material items may, according to Marta Skowrońska, lead to the 'selection of the most effective, functional, aesthetically pleasing, space-saving and lightest items'.[76] If these observations hold true and can also be applied to broader society, then fostering a lifestyle that can settle with less material consumption could be aimed at through architecture as well. If a building's form should follow its function, then the minimalist goal of 'decluttering' spaces should be reflected in its design as well. As an example, the architect Ann Thorpe advocates the use of architecture as activism for challenging the paradigm of constant economic growth and as means to alleviate its negative environmental, social, and economic consequences.[77]

Architecture and Environmental Anxiety

Cultural resilience could also help in overcoming other emerging impacts of climate change—in particular, those that affect mental health. Several researchers have documented that climate change, its consequences, and its communication in the media are already causing mental stress, anxiety, depression,[78] and are even increasing the risk of suicide.[79]

As a remedy for climate-related anxiety, a few general approaches exist.[80] These include political leadership in both admitting to the severity of the climate problem and in signalling active mitigation and adaptation policies; healthcare and social support systems that recognize the symptoms of climate-related anxiety and offer support; and therapy, discussion groups, and self-help materials. In addition to these, both art[81] and rituals[82] are proposed as valid approaches to dealing with feelings of environmental anxiety and for creating compassion towards oneself.

The role of art and rituals brings the discussion to cultural resilience through architecture. Would it be possible to also use the power of the built environ-

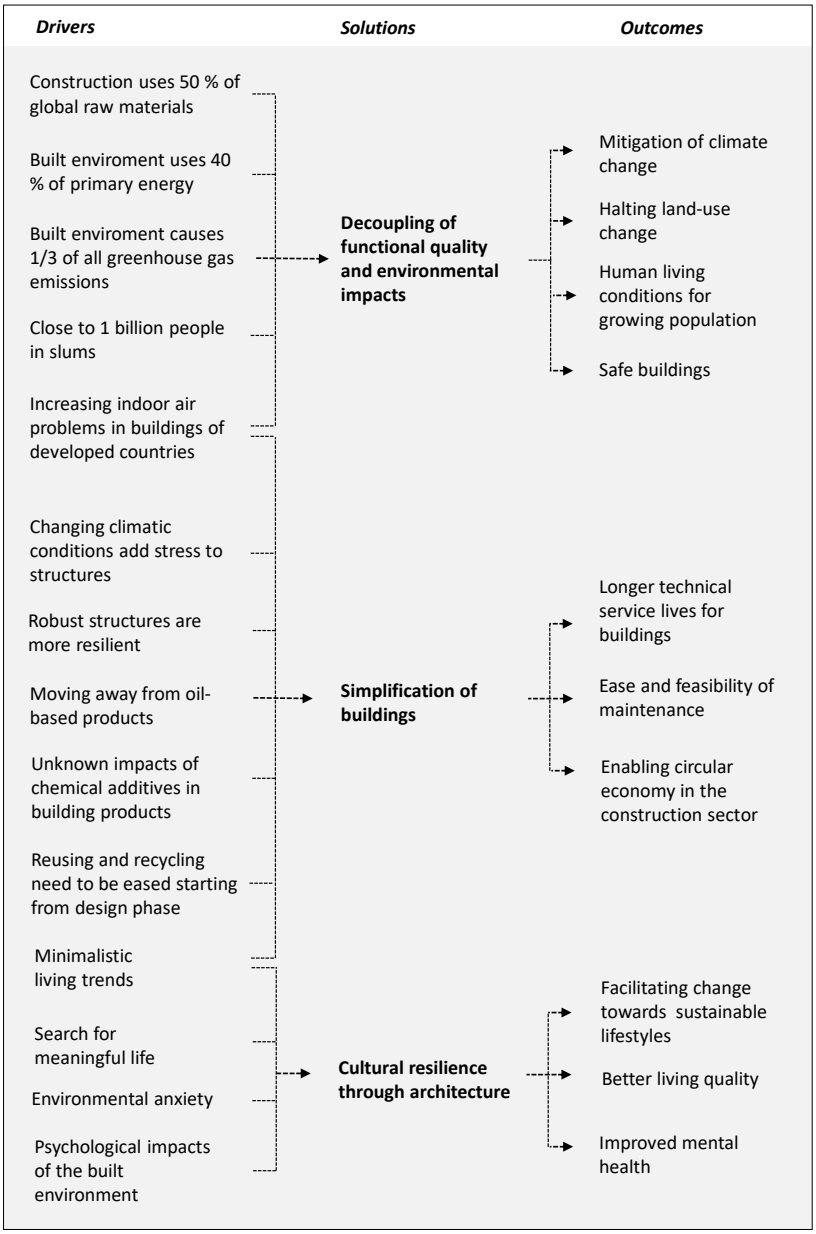


Figure 4. Drivers, solutions and outcomes. Source: Matti Kuittinen

ment for alleviating the mental impacts of climate change? Could we design memorial places or meditative surroundings that would offer us spaces to deal with difficult feelings and provide possibilities for building mental resilience? Could we use the built environment for facilitating a societal shift from consumerism to sustainability?

For thousands of years, architects, engineers, and master carpenters have sought to impress and inspire with buildings. We may experience a sense of majesty in the Pantheon of Rome, enjoy the modest cosiness of the turf house of Núpsstaður in Iceland, feel supressed in front of Albert Speer's plans for the Nazi Volkshalle in Berlin, or transcend into a meditative state-of-mind in the modern wooden Kamppi Chapel (or Chapel of Silence) in Helsinki. We experience these emotions through architecture. Architecture's role in behaviourism is utilized commercially as well. Many of today's shopping malls and restaurants can be interpreted as symbols of consumption[83] that are intentionally designed to make consumption as effective as possible. Thus, architecture—and the entirety of the built environment—has the unique potential to create an atmosphere, influencing our moods and offering a perception of the society that has produced it. Amidst the typical discourse of sustainability in the built environment, this may sound distant or even escapist. However, we need both physical and mental strength to overcome the challenges of global warming (and human nature) so that we can avoid dangerous climate change and build a better future—preferably on Planet Earth.

CONCLUSION

The built environment is a long-lasting asset, and therefore it includes a significant risk for path-dependency. How we design and build our future is an important and strategic decision in which architects should actively engage. We can question how many new buildings we need to build—or how many we can afford to build if the competition for limited resources gets tougher. We can design buildings that are highly efficient in their use of energy and materials over their full life cycle. These actions are reactions to the current state of the Anthropocene. Proactive measures are more difficult, but they may have greater impact. We can use architecture to alleviate the forthcoming turbulence of the Anthropocene. Although the quantification of such proactive benefits is challenging, we should not abandon this aspect.

The three suggestions for architecture include both reactive and proactive responses to the Anthropocene. A decoupling of functional quality from

environmental impacts is a reactive action. When given goals based on the 'rapid decarbonization roadmap', it becomes proactive as well. Simplification of building technology is both reactive and proactive, as it responds to the need to cut resource use while preparing the built environment for the changes in weather, usage, and availability of resources for maintenance. Simplification as a design agenda, however, offers possibilities for using architecture for facilitating much-needed changes in lifestyles. The potential of cultural resilience is part of architecture's proactive response to the psychological impacts of the Anthropocene. This is a specific value-added feature of architecture that neither construction technology, nor ecological optimization, nor the social sciences alone is able to produce.

Finding a remedy to the Anthropocene is perhaps the biggest joint effort of the whole of humankind.[84] To be successful, we need to engage all sectors of our society. Now, perhaps more than ever, architecture requires redefinition.

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SALVAGE AND INTEGRITY

Lionel Devlieger

ABSTRACT

This article argues that the reuse of building materials will increasingly appear in the foreground as a building waste management strategy. There are compelling environmental, economic, and social arguments, for owners and public authorities alike, to favour reuse above other strategies, such as recycling. Also, reuse has been the dominant practice, in terms of building and demolition waste management, for centuries, before the need for ever-greater speed and productivity in the twentieth century made it fade away. Yet pushing for the large-scale reintroduction of reuse in the building industry is not just a question of good will: in practice, a series of important hurdles will need to be overcome first.

This article details some of these impediments: the legal, administrative, and logistical hurdles, but also the cultural obstacles. We have grown so much acquainted with environments designed and built using new materials that the mere thought of a design which includes salvaged components feels unsettling. The article then proceeds to present a contemporary deconstruction practice active in Brussels, Belgium: Rotor DC (for Deconstruction and Consultancy). This cooperative company is specialized in the selective dismantling of building elements from large urban complexes slated for demolition or heavy refurbishment. They also have considerable experience in the preparation of these elements for reuse and of their reintroduction into the market. The article concludes with reflection on which materials or building elements are good candidates for a subsequent life, based on Rotor DC's growing experience in deconstruction.

KEYWORDS

Building materials reuse, salvage, deconstruction

Our environment is filled with built infrastructure to a point where it is sometimes hard to see how to add new function or meaning to it. Recently, some have justly called for a redefinition of architecture as a professional practice to include 'unbuilding' or 'subtraction' as a constituent part of it. The befitting metaphor, then, is that of the architect as a gardener, who, apart from knowing how to grow plants, also expertly wields the pruning shears to keep things tidy and healthy. This line of reasoning, focusing on what is left after the removal (the trimmed plant, so to say), often reveals two important points: that much building trimming is happening without the need of any architect, and that usually no attention is paid to what is taken out. In the act of deciding what needs to go and what can stay, even in refined adaptive reuses, extracted materials are offcuts or weeds, sent off to garden waste recycling. (While a plant that is uprooted or cut from its stem will die off, a building component torn from a building may live several lives elsewhere.)

In the coming years, the reuse of components of existing buildings will become of more and more importance. The construction industry consumes raw materials in considerable quantities and produces an enormous mass of waste. Waste sorting and recycling in generic fractions (wood, aggregate, metals, glass, etc.) is not good enough. At Rotor, we plead instead for the reinstatement of the forgotten art of slowly taking building components apart—when they need to go—in view of their subsequent reuse.

The dismantling of old buildings to the benefit of new ones is nothing new. The history of architecture is full of examples of recycling and reuse. The Romans recycled their rubble in situ to make concrete. At a time when transportation took time and required a lot of energy, both human and animal, everything within reach was welcome. Abandoned buildings were used as quarries for materials intended for construction or ornamentation. Bricks were cleaned and reused as they were, timber sawn and re-dimensioned, blocks of stone chiselled to size again. Contractors conducting demolitions, up until the early twentieth century, took care to break as few components as possible. Demolition sites routinely turned into yard sales, unless contractors needed the materials for their own projects.

As Jeff Byles's book *Rubble: Unearthing the History of Demolition* (2005) has shown, New York spearheaded the change. It started in Manhattan in the 1930s, then spread over the rest of the world: the abandonment of age-old salvage practices. Many parameters contributed, apart from the fact that

rubble, hauled on barges, could just be tipped into the East River: soaring wages made labour-intensive activities, such as the cleaning of mortar from bricks, unprofitable; soaring real estate prices pressured for short replacement cycles; steam-powered demolition machines allowed for less manpower and more speed; finally, security concerns, buttressed by insurance contracts, pushed workers away from direct contact with building materials. Ever since, building demolition and waste management has become a highly mechanized industry, as it still is today, focused on speed and employing a handful of workers mostly operating from the safe distance of a crane or bulldozer cabin.

A series of hurdles stands in the way of large-scale acceptance of building component reuse today. Some challenges are purely logistical and relate to questions of limited supply and availability that do not emerge with new, industrially produced goods. There are chances that the salvaged steel beams or floor boards which an architect details in their specs will no longer be available, or not in the necessary amount, when the designated contractor sets out to order them. We believe that the set-up of a transregional network of trusted salvage suppliers, working with digital portals providing real-time information about distributed stock availability, can already offer considerable relief.

New building materials come with paperwork in the form of certifications: guarantees that the product reaches certain physical performance levels, as tested in lab conditions. Given the bewildering variety found in the existing built fabric, it is unrealistic to expect each single product on the salvage market to come with similar legal guarantees. But this realization should not disqualify the possibility of a salvage market altogether. There are workarounds. Many materials have conserved their initial performance levels, detailed in archive files, even after dismantling, transport, and preparation for reuse. We also believe suppliers and designers should apply a precaution principle: steering clear of using untested salvage materials for risk-prone applications. Salvaged marble slabs, of whatever origin, are better used as interior flooring, for instance, than as facade cladding for a high-rise.

The final hurdle is a cultural one. One of the rare terms in scholarly literature for architectural salvage is 'spolia' (Opalis is an anagram of the term and the name we chose for an online directory documenting specialised reuse operators in North-West Europe). Archaeologists and architecture historians use it to refer to components that had previous lives in other structures, such as the reclaimed Roman columns of an Early Christian church. The term

is alas burdened with an explicitly negative connotation: 'spolium', in Latin, originally means stripped animal hide but also war booty, or anything acquired by violence. Now, an etymological enquiry shows that, in its meaning as architectural salvage, 'spolia' only appeared in the sixteenth century. It is a modern, post-factum projection (of vicious backwardness) on a widespread and honourable practice in Antiquity.

Today, Belgium ranks very highly among European countries in terms of 'reprocessing' construction and demolition waste (avoiding landfill), with a recycling rate of 80 to 90 per cent. That advantage stems from this country's experience in managing the rubble of World War I, which, given the extent of the destruction, needed to happen on an industrial scale. But does it make sense to apply the same methodology to buildings that have not yet been turned into a pile of rubble? Most demolition products consist of inert materials: concrete, cast on-site and prefabricated, but also bricks, natural stones, precious marbles, rare tiles, et cetera. In contemporary practice, these are all indiscriminately crushed, then used as backfill for road construction, an extreme form of downcycling and accelerated entropy.

In today's world, the practice of reducing the materials from obsolete buildings indiscriminately to rubble (or, when talking of wood, to chipboard or fuel) has become untenable. It shows a total disregard for the potential value embodied in the extracted material. Even if removing and sanding salvaged tropical woods or marbles to prepare them for reuse is labour intensive, it can be profitable if carried out properly. For authorities, there are good reasons to encourage this practice: it reduces the amount of waste materials to be dealt with; it saves on energy to crush building parts and on fine dust in the air; it saves carbon and increasingly precious raw materials in the production and transport of new building materials; it creates local job opportunities. Yet to make the recirculation of building materials on a more-than-marginal scale possible again, two practices need to be urgently re-evaluated.

Modern practices of salvaging building components in Europe and North America originated in the 1970s, in a context of growing indignation caused by the loss of landmark buildings replaced by modernist developments, especially in urban areas. What was initially a form of activism gradually turned into a profession. Today, in countries such as the United States, the United Kingdom, France, Belgium, the Netherlands, and Denmark, a relatively dense network of independent small and medium-sized enterprises

exist, mostly family-owned businesses, active as resellers of salvaged building components, usually collaborating with like-minded demolition contractors that are supplying them.

There is a gap in the market for salvaged materials from office buildings: recent, urban, large-scale developments. In 2016, we set up our own deconstruction company, Rotor DC (for Deconstruction and Consultancy) in Brussels, geared towards such source materials. The office spaces we visit are generally fitted with glazed wall partitions, suspended ceilings, built-in lighting devices, raised floors, carpet tiles, et cetera. These elements were designed according to a modular logic to satisfy the flexibility requirements of the tertiary workspaces. Yet in practice, in spite of these assets, they are almost systematically removed and destroyed each time a floor is renovated. In Brussels this happens routinely whenever there is a change of tenants; typically every ten years, but sometimes after only three. Rotor spends, therefore, a portion of time actively looking for quality buildings slated for renovation or demolition, then establishing partnerships with the owners. Rotor's deconstruction operators typically work right before the demolition contractors start operations—they will only remove a carefully selected portion of all there is: those elements for which the perspective of resale, at a price covering all costs, is sound.

How do you select appropriate components that can be reused in a new project? The cost of extraction is a decisive factor, as is the state of conservation of the part in question, its solidity, the durability of the materials that compose it, the ease with which it can be integrated into its new state, its functional and symbolic value. Our job is to take these parameters into consideration when we go through a building to decide what to preserve and what to leave in the hands of the demolishers. Poor judgment can be expensive. Our assessment of the monetary value of the components obviously depends on the market, but the latter can be influenced, stimulated. Where demand does not yet exist, it can be sparked; where supply is lacking, it can be encouraged. The question of what can be salvaged always remains. Extracting parts of a building that need to come down means identifying the entities that, once detached from the set, will have the best chance of individual survival. As with surgery, it is important to know where the dotted line is. It is not always possible or useful to preserve everything. But we must not underestimate the value that some assemblies can have and their ability to transform into valuable new architectures.

Figures 1–2. Rotor DC crew dismantling floor slabs in Carrara marble in the lobby of an office building in the European district of Brussels. Source: Rotor.

Figures 3–4. Showroom of Rotor DC with salvaged floor tiles and sanitary equipment. The shop, showroom, warehouse, and offices are established in a former chocolate factory in Anderlecht, Brussels. Source: Rotor.

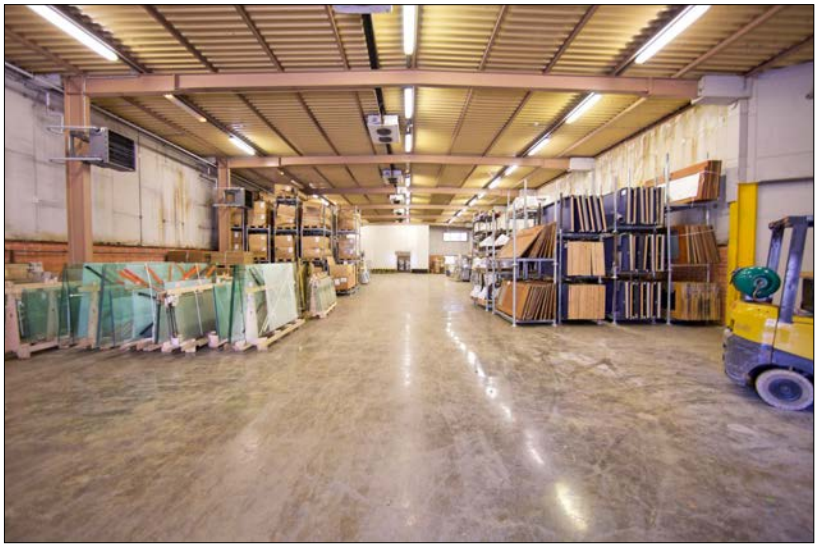
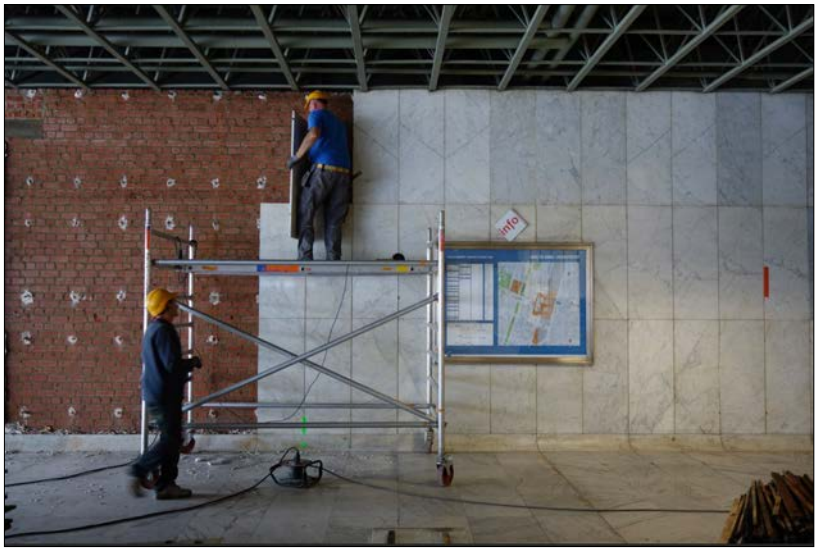


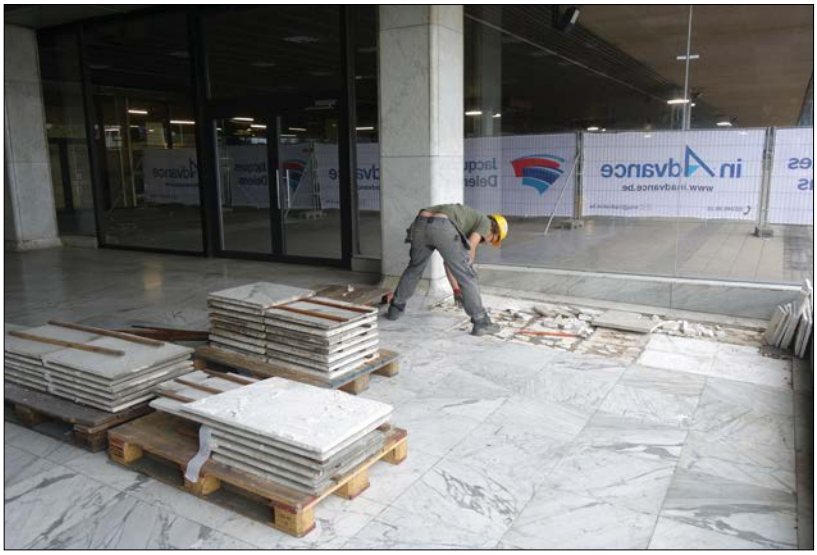
Figure 5. The warehouse of Rotor DC in Anderlecht, Brussels. Source: Rotor.

Figures 6–8. Deconstructing sculpted oak features during the remodelling of the interiors of Antwerp City Hall in 2017. Source: Rotor.

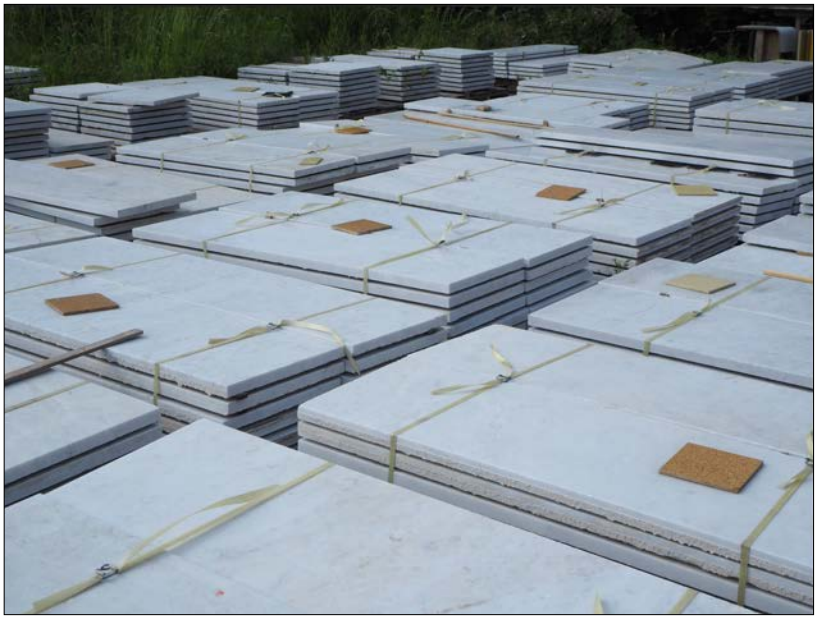
Figures 9–12. Rotor DC carefully dismantled the staircase in the lobby of the Boudewijn building in Brussels. Originally constructed in 1990, the government building is slated for demolition. Source: Rotor.



Figures 13–16. Dismantling of wall and floor panels in marble in the Brussels North Station. This part of the station was designed in the 1970s and is now being thoroughly remodelled. The panels, a particular variety of Carrara marble called Arabescato, are carefully stacked for transport. Source: Rotor.



Figures 17–20. Sorted and cleaned Carrara marble panels at the outdoor storage area of Rotor DC, Anderlecht, Brussels. Source: Rotor.



BUILDING THE GREEN CITY FROM WOOD? POLICIES, PRACTICES, AND INSTITUTIONAL CAPABILITIES IN SWEDEN

Ida Andersson

ABSTRACT

Ideas about green cities, good architecture and planning are often shared among professionals working in the field of urban planning and design during conferences, workshops, and meetings. But how is what is considered 'good' or 'best' in planning and policy decided? And where do we learn about good ideas, places to visit, and projects to be inspired by? Are there any potential risks or challenges inherent to following in the wake of the same 'inspiring' reference objects as everyone else—regardless of whether it is a city, a neighbourhood, or a building?

This article makes the case for a policy mobilities perspective for understanding how ideas about the green city are conceptualized, formulated, and mobilized in urban policy. Drawing on a growing body of literature in geography and urban studies, the article argues for the usefulness of adopting a policy mobilities perspective when working with(in) green city policy, also for scholars outside the field of geography. Using the case of multistorey housing in wood in Sweden, the article presents three different perspectives on how ideas about green cities are formulated and mobilized.

KEYWORDS

Green city, policy mobilities, multistorey housing in wood, green policy

INTRODUCTION

In April 2018, a group of people visited a newly completed student housing complex called Kungsbäck, in Gävle, Sweden. The group consisted of approximately forty people working as architects, planners, policymakers, and builders, and they were invited to Kungsbäck by the Trästad Sverige organization. The visitors were welcomed to the site by the head architect of the project, who is also the owner of the housing company that now rents the houses to students. He gave the group a detailed description of the project, the objectives that guided the process, and how functionality, tenants' needs, and the specificities of the place (light, surrounding environment, local and national planning regulations) worked together in the design and construction of the red and grey housing complex that consists of three three-storey buildings containing ninety-five apartments built entirely of wood. After this talk, the visitors were invited to visit one of the small studio apartments on the second floor, where they experienced the interior design, choice of materials, and the way light enters through the windows. This was followed by a round of questions from the visitors that were answered by the host.

This type of visit is a well-recognized practice among planners, architects, and policymakers, and it takes place in many different locations and formats around the world. Identifying objects that can be understood as 'good' in planning, architecture, or urban development and learning from those cases has become a key feature of everyday life for people working in urban planning.[1] Places that have been identified as flagships or showcases play an important role in deciding *where* to go and *what* to learn.[2] Visiting and learning from an already built environment helps planners and architects to conceptualize and refer to 'good' as well as 'bad' examples.[3] One of the main rationales for this practice is that learning from elsewhere spreads proven ideas and concepts and is assumed to make it easier to be successful elsewhere.[4] This type of study visit and tour has a long-standing tradition in planning,[5] and increased attention to the circulation of good ideas through international policy programmes and finding best practices has increased the volume of circulated policy ideas and models.[6]

With the 'urban turn' in sustainability policymaking,[7] concepts like 'green cities', 'smart urban specialization', and 'low carbon communities' have become buzzwords in policymaking and academia.[8] The main issue at hand is how to decrease the climate impact of urban settlements, while maintaining growing populations and expectations of economic growth. Often, the

proposed solution to this urgent task is presented as a mix of new, more effective and strategic policymaking alongside innovative technological development, making policymakers look elsewhere for inspiration and good ideas.[9] Especially in matters regarding planning for and building more sustainable and 'green' cities, destinations such as Copenhagen, Freiburg, Vancouver, and Malmö have been frequently referred to as must-see places to learn best practice.[10] In geography and urban studies, this circulation of policy ideas and models has come to be known as 'policy mobilities'[11] and focuses on understanding how policy ideas and models are formulated, disseminated, and implemented across the globe.[12]

In Sweden, the definition of a 'green city' has recently taken a new direction, introducing a discussion on the materials used when constructing houses.[13] Multistorey housing in wood is considered a potential avenue for reducing climate impact, while addressing the increasing demand for new housing in urban areas.[14] Building from wood have the potential of substantially reducing the carbon dioxide emissions compared to building a similar house using concrete and steel.[15] Employing a renewable, locally sourced, and strong yet light material, wooden houses have dominated the single-family housing market in Sweden for centuries. However, building houses in wood that are taller than two storeys is a recent development in Sweden, which has only been permitted since 1994. This makes multistorey housing in wood a fairly new building technique in Sweden. It also requires slightly different methods for the design and construction than concrete and steel. The increased political focus on green cities and on multistorey housing in wood have created a surge among planners, architects, and engineers in Sweden to seek good examples and places to visit in order to learn about this new way of building green cities.

In geography, the research interest in 'how, why, where and with what consequences'[16] policies, which are being circulated between different places in search of best practice, has gained increased momentum.[17] Trying to understand the underlying processes, structures, and agencies that make certain policies become mobilized while others remain immobile—and what happens to the ones that are moved about—lies at the heart of policy mobilities research. Are there any potential pitfalls associated with following 'universal truths' about what is good or desirable, or for everyone to follow in the wake of the same reference objects? And how are shared views on what is good and not so good even developed? At the same time, the question for someone outside of the policy mobilities research context might be why trying to

unveil these intricate social and geographical dynamics in identifying best practice policies matters at all? Instead, such a person might argue that, when working with green city policies, aiming to mitigate climate change should be the main concern, rather than debating about where these (good) ideas come from. This line of argument will be addressed in this article.

This article argues for the usefulness of a policy mobilities perspective in understanding how ideas about the green city—here exemplified by the case of Swedish multistorey housing in wood—are conceptualized and formulated in urban policy, and why policy mobilities perspectives matter for scholars outside of geography. Drawing on international literature about how policy ideas and models are formulated and mobilized, three different perspectives are presented on how multistorey housing in wood is conceptualized as a solution for building green cities in Sweden. These perspectives relate to: 1) practice, 2) policy development, and 3) institutional capabilities. The main outline of the article stems from a keynote presentation that I had the privilege to give at the Nordic Association of Architectural Research annual symposium in Seinäjoki, Finland, in 2018, which was further developed for the purpose of this article.

The article is structured as follows. The next session presents the main traits of the policy mobilities literature with an emphasis on the circulation of green urban policies. The case of multistorey housing in wood in Sweden is introduced, accompanied by a brief reflection on methods. The article continues by presenting three different perspectives on how multistorey housing in wood is being conceptualized as a solution for building green cities in Sweden. This is followed by a concluding discussion.

POLICY MOBILITIES AND THE CIRCULATION OF GREEN URBAN POLICY

In contemporary urban policy, certain cities are identified as 'celebrity cities' and are generally considered role models for how to handle particular types of urban issues.[18] In planning and urban development, it is not uncommon to reference the 'Barcelona model' for urban regeneration[19] and Bilbao's 'Guggenheiming' for cultural development policies,[20] or to celebrate the bicycle planning of Copenhagen[21] and the public transport policies in Freiburg.[22] Various rankings and awards, such as the Green City Index by Siemens and the Quality of Living City Ranking by Mercer, contribute to the understanding that some cities are considered to handle certain urban

issues better than others. These rankings serve to reinforce the notion of best practice being located in particular places and a hierarchy of nodes in policy circuits, creating what McCann calls 'referencscapes'.[23] By studying successful examples from such cities, politicians and policymakers hope to be inspired by 'best practices', learn what works, and bring good ideas back home to implement in a new context.[24]

In response to this development, many studies have been published under the rubric of 'policy mobilities'.[25] This set of geography and urban studies literature aims to understand the phenomenon of mobile policies and the accompanied sharing and learning of good (and sometimes bad) practices.[26] In policy mobilities research, there is a special interest in the study of the key actors, institutions, and practices involved in the process of transferring policies from one place to another, along with the institutional and geographical structures that facilitate or hinder such transfers.[27] Key perspectives relates to 'how, why, where and with what effects polices are mobilized, circulated, learned, reformulated and reassembled'.[28] Previous research has shown how policy is increasingly being mobilized and circulated in professional networks through conferences, workshops, and policy briefs for the purpose of shared learning and exchange of experience. Examples of such practices are found in the fields of urban environmental policy,[29] public transport,[30] drug prevention policies,[31] urban development,[32] and regional policy.[33] Especially for people working in a planning context, policy mobilities through study trips or 'policy tourism'[34] are a shared practice in many parts of the world.[35] Policy mobilities may therefore play a rather universal role in the formulation of ideas about what is 'good' urban policy.

Regarding environmental urban policies, several writers note that there is an increasing practice of sharing and learning about good ideas between policymakers working with issues related to sustainability.[36] At the level of the European Union (EU), this is manifested through awards such as the European Green Capital Award[37] and events such as the annual European Week of Regions and Cities in Brussels.[38] At the urban level, the political interest in sharing good green ideas occurs through city networks, such as the Union of the Baltic Cities, Energy Cities, and the International Council for Local Environmental Initiatives (ICLEI).[39] According to Gustavsson et al., local governments use such peer-to-peer networks to make a name for themselves and their city as a frontrunner or early adopter in the field of environmental policy and to access new ideas and technologies.[40]

In response to augmenting interurban competition and economic globalization, cities with green ambitions are increasingly turning towards entrepreneurial and extrospective efforts,[41] sometimes adopting 'green place branding' strategies.[42] In addition, cities that actively engage in mitigating climate change or adopting green urban policies tend to do so by incorporating experimental pilot projects, as Emilia Smeds and Michele Acuto note.[43] Such experiments, if somewhat successful, can be turned into permanent policies and examples for others to learn from. Experimental and innovative policy can thus provide both policy development and marketing opportunities for extrospective green cities.[44] However, these strategies are not necessarily effective for addressing the underlying environmental issues, as Rosol et al. argue,[45] for extrospective and experimental policies tend to focus on things that can be put on display and provide a competitive advantage, rather than on holistic approaches. Entrepreneurial and extrospective measures have been shown to increase elements of cherry-picking and selectivity in green urban policy,[46] creating 'semi-coverage' in addressing urban environmental problems.

This brief introduction of policy mobilities and how it relates to the development of green urban policy serves as background for the continued discussion on how multistorey housing in wood is being conceptualized as a solution to building green cities in Sweden.

METHOD AND CASE STUDY INTRODUCTION

This article draws on empirical data collected during a three-year (2016–19) research project called *Sustainable housing 2.0? The role of policy networks and eco-innovation in the Swedish wood housing industry.* The project combines a number of different qualitative research methods to provide a rich and detailed data set that captures the interlinked processes between the development of policy and industry in relation to multistorey housing in wood. The data collection comprised: 1) in-depth interviews with stakeholders involved in the wood-based housing sector in Sweden, 2) participatory observation during network meetings, conferences, fairs, and seminars, 3) mini-interviews with participants during these meetings, conferences, fairs, and seminars, and 4) analysis of secondary printed materials such as flyers, newspapers, books, reports, and policy documents produced by industry organizations, political bodies, and interest groups.

When the ban on constructing new wooden houses taller than two stories was cancelled in Sweden in 1994, it had existed for over 120 years. It was

introduced as a response to the many devastating city fires that had struck Swedish cities in the 1700s and 1800s, where wooden houses were identified as a reason why the fires spread.[47] The ban was lifted when Sweden was about to join the European Union in 1995 and had to alter the national fire hazard regulations for construction. The changes meant that the regulations no longer specifically named wood as a prohibited material. Instead, the new regulations stipulate functionality in case of a fire. A building (regardless of building material) taller than two stories must be able to stand for a substantial amount of time (90–120 minutes, depending on height) before the risk of collapsing in case of a fire, which allows for time to evacuate the building and for the fire department to arrive. This shift in legislation, combined with fire prevention techniques such as sprinklers, provides a window of opportunity for new materials and construction methods in Sweden, and wood has been one of the most renowned and successful so far.[48]

A handful small-scale multistorey wood housing projects were realized in the 1990s and early 2000s. The subsequent rather slow start to the production of multistorey wood housing has recently increased in pace. Approximately 10 per cent (3,598 apartments) of the newly built apartment stock in 2016 was constructed of wood.[49] Building from wood can possibly reduce carbon dioxide emissions—compared to housing built from concrete and steel—and act as a carbon sink, binding carbon to the structure throughout the remainder of the house's life span.[50] The notion of multistorey housing in wood as a political climate strategy was first introduced in the national political landscape in 2004 through the Swedish national policy called 'Mer trä i byggandet' (More Wood in Construction).[51] This was later replaced by a national three-year programme called 'Trästad 2012'.[52] The programme involved seventeen municipalities and four regions, and it was aimed at increasing the large-scale production of multistorey housing in wood. It was supported by a larger national 'Forrest Kingdom – with values for the world' strategy, launched by the Minister for Rural Affairs. This strategy aimed at increasing the potential for economic growth in rural areas as well as the potential for new export markets for the timber industry, which included multistorey housing in wood.[53] The climate-related arguments to increase the production of multistorey housing in wood was renewed after the 2014 general election in Sweden and entered a number of different policy fields on the national level. Multistorey housing in wood became a shared concern for the Minister for Housing, the Minister for the Environment, the Minister for Business and Industry, and the Minister for Rural Affairs.[54]

Parallel with the development of national policies to promote multistorey housing in wood, policies to increase the construction of wooden-based housing have been developed on the local level. Several municipalities (e.g., Skellefteå, Växjö, Skövde, Stockholm, Mönsterås, etc.) have sought potential benefits from promoting the construction of multistorey housing in wood through planning strategies, budgetary work, and procurement policies.[55] The development and characteristics of these policies are addressed in more detail below. Representatives from these municipalities—together with a growing number of producers, architectural and engineering firms, a handful researchers and public officials—constitute a group of actors that actively engage in promoting increased production of multistorey wood housing in Sweden. This group of actors is henceforth referred to as *the wood housing sector* in this article.

Considering the technical specificities of multistorey wood housing, the potential of different building techniques and solutions to reduce carbon dioxide emission and provide a carbon sink varies.[56] In general, there are two main building techniques in the Swedish market for multistorey housing in wood: cross-laminated timber (CLT) *frames* and CLT *modules*. The former has a higher degree of design flexibility and timber content as it is custom made for each new project, which usually also implies higher production costs. The latter permits more streamlined and cost-efficient production with a high level of automatization to produce standardized modules with more repetitive design features.[57]

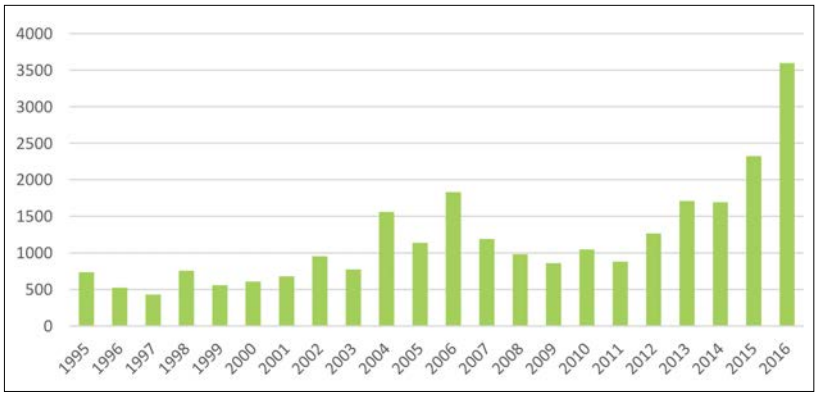


Figure 1. Number of apartments built with a wooden core in Sweden, 1995–2016 (Source: TMF, 2017)

However, building multistorey housing in wood is far from uncomplicated. As this building technique is fairly recent in Sweden, the skills and acceptance of building wooden housing taller than two stories are rather limited. The knowledge and experience is rather concentrated within a few architectural firms, construction companies, and engineering consultancies.[58] In addition, the capacity of the wood house producers is limited, as there are few such producers, considering the size of the overall construction industry, despite recent investments and start-ups.[59] Moreover, given the lightness and flexibility of wood as a construction material, the beams separating the different floors must be thicker than concrete ones. This can potentially lead to fewer floors and thus fewer square metres in tall wooden buildings than in equally tall concrete constructions, affecting the economy of the projects.[60] This issue has been handled in a few planning projects (e.g. Vallastaden in Linköping and Frostaliden in Skövde) by specifying in the planning permits the maximum number of floors rather than the maximum height. This solution requires the active involvement of policymakers producing such planning documents to advocate wood as a building material. Taken together, these issues create obstacles for the wood housing sector in increasing the amount of multistorey housing built of wood in Sweden.

To address this complex structure of technical, knowledge-related, policy-oriented, and capacity-based challenges, the Swedish wood housing sector has organized a series of conferences, seminars, and study tours and produced numerous reports, debate articles, guidebooks, and policy documents arguing for the potential benefits of building more multistorey housing in wood. This presents a rather intricate and detailed case from which this article draws. The following section combines insights from policy mobilities literature and data from the above case to present three perspectives on how multistorey housing is being conceptualized as a solution to building green cities in Sweden.

THREE PERSPECTIVES ON CONCEPTUALIZING THE GREEN CITY (BUILT IN WOOD)

As noted above, policy mobilities play an important role in how ideas and understanding of green city policies are formulated, disseminated, and implemented and with what consequences.[61] Reflecting on who is included in networks working with green urban policy and who is not provides a strong argument for why policy mobilities matter. Considering the processes of policy development and formation, it is important to reflect on who is

considered an expert. Who is being listened to and who do people take advice from? In what arenas do these actors operate? In the following sections, three different perspectives on how multistorey housing in wood is being conceptualized as a solution to building green cities in Sweden—relating to practice, policy development, and institutional capabilities—are discussed.

UNDERSTANDING GREEN URBAN POLICY PRACTICES

One of the most easily detected policy mobilities practices in green urban policy is the study tour. Study tours are crucial in learning about 'what works' for other cities and what has been successfully implemented elsewhere.[62] In the case of the wood housing sector in Sweden, study tours are usually organized under the umbrella concept 'wood house safaris'. The safaris are organized in municipalities that are considered to be frontrunners in wood building, such as Växjö and Skellefteå, with many well-known objects to

Figure 2. Kungsbäck student housing complex, Gävle 2018. Photo: Ida Andersson.

Figure 3. Wood house safari, Linköping 2017. Photo: Ida Andersson.

showcase. Safaris are also organized in less established wood city locations—often where new development is taking place or is planned—such as Linköping and Gävle.[63] The wood house safaris attract a broad spectrum of interested actors, including real estate developers, engineers, building contractors, architects, planners, politicians, and researchers.

The conferring of rewards and prizes is another well-established practice that helps mobilize green urban policies.[64] 'Trästadens gnista' (Wood City Ignition), 'Träflugan' (The Wooden Bowtie), 'Träpriset' (Wood Award), and 'Trähjälte' (Wood Hero) are some of the many awards that are given in the Swedish wood housing sector. Some awards are bestowed by private actors, such as 'The Wooden Bowtie', which the major CLT timber frame producer Martinson awards every year. The Bowtie is awarded for innovative accomplishments by small-scale actors (with less than ten employees) or individuals 'who have pushed their business—or the entire industry—forward during the last year'.[65] Other awards are presented by governmental organizations, such as the 'Wood Building Award' bestowed by the Växjö municipality that is awarded to a project, company, or research publication that 'reinforces the municipal wood building strategy and manifests Växjö as the national leader in wood building'.[66]

The third policy mobilities practice highlighted here is the participation in various types of green city networks and policy workshops/seminars. As noted above, such networks are central in understanding how and why certain green urban policies are circulated.[67] There are several policy networks in the Swedish wood housing sector. The primary network is called 'Trästad Sverige' (Wood City Sweden) and gathers policymakers, industry representatives, and researchers from all over Sweden. The network was created in the wake of the Trästad 2012 programme, and the network's main objective is to 'inspire to develop the construction in wood and to disseminate knowledge on how to do this in the best possible way—technically, environmentally and economically'.[68] Other examples of networks that work to promote building in wood are 'Nordic Wooden Cities', 'Tre Trästäder', and 'Rethinking wood'.[69] In 2018, a professional network for architects interested in learning about multistorey housing in wood was inaugurated. The network is called 'TränätverkA'[70] and aims to 'spread knowledge about wood within the [architectural] community in order to collectively keep the initiative in wood building issues and ensure good architecture'.[71] In one of the first meetings held by this network in the fall of 2018, the founding members explained that, due to the technological speci-

ficities of building multistorey housing in wood, the design of such houses has been left at the hands of engineers and manufacturers. Through TränätverkA, architects are looking to retake the design initiative for green urban structures.

In addition to various types of networks, many different seminars, conferences, and workshops have been organized by various actors in the Swedish wood housing sector. A common theme for most of these activities is an ambition to bridge research and policy with industry know-how and good examples from implemented projects from Sweden and abroad. During these conferences and workshops, small-scale business fairs are often set up outside of the conference venues so that related businesses can showcase building materials (i.e. insulation, screws, etc.), new technologies, and consultancy services targeting the Swedish market for multistorey housing in wood.

UNDERSTANDING GREEN URBAN POLICY DEVELOPMENT

Previous studies have shown that the green city concept is rather imprecise in terms of what it can and cannot involve, which allows for a broad range of interpretations when it is being implemented.[72] There is variability in what is meant by 'green' in green urban policy, which spans from green space to de-growth strategies. Between these two extremes, there are many issues such as green growth, energy efficiency, smart city strategizing, and bio-economy.[73] As separate entities, these concepts represent various dimensions of environmentally oriented policymaking, and they can be understood as a spectrum of green urban policies. Local governments adopting a green city identity for the purpose of place branding can define what they mean by using green terminology and how these different policy concepts can be combined.[74] Critical views have described this as a cherry-picking process, where local governments tend to highlight the dimensions of green that they perform better in,[75] and downplay what they do less effectively.[76]

The dominating argument for building multistorey housing in wood in Sweden rests on a general argument of *ecological sustainability*. Here, the lower carbon dioxide emissions during production as compared to using concrete and steel has been targeted.[77] In addition, wood is being promoted as a renewable building material and a carbon sink as compared to concrete.[78] Multistorey housing in wood was initially introduced as a way to alleviate issues related to climate change, but the spectrum of sustainability arguments broadened over the years. *Social sustainability* has recently been introduced into the discourse, manifested in two main avenues. The first is the potential

health benefits of living or working in a wooden house,[79] where some early claims of respiratory benefits must be considered anecdotal.[80] However, one study in Norwegian hospitals claimed that post-op patients recovering in hospital rooms with visible wood on the walls are discharged faster than those with traditional white plastered walls,[81] a finding that is repeatedly referenced at wood-housing conferences and workshops. The other avenue focuses on the workplace conditions for those who are building the houses, where the high level of prefabrication of wood house modules means that the workers assembling can potentially work in indoor factories rather than outdoors using other building techniques.[82] The workplace conditions on the assembly sites have been added to this discussion, with claims that the softer wood makes it less noisy than concrete when drilling in the walls.[83] This is claimed to be beneficial for those working on the building sites as well as for any potential neighbours, who might be disturbed by the noise from construction.

Finally, several sets of arguments relating to *economic sustainability* have been added to arguments for building multistorey housing in wood in Sweden. One of the central arguments from a political point of view is that building multistorey wood housing contributes to regional development in more peripheral areas of the country. As most of the producers of multistorey housing in wood are located in rural and remote areas of the country, arguments are made that building wooden houses for urban markets contribute to creating rural jobs and investments.[84] In addition, especially in relation to building module housing, the argument of low-cost housing has made its way into the discussion. For example, housing producer BoKlok, jointly owned by IKEA and Skanska, claims that single mothers with two kids and a low income are their 'target customer' for their wooden apartments.[85] A similar market segment is identified by family-owned Lindbäcks Bygg, which uses LEAN production principles to provide large quantities of wooden module housing at a cost-efficient price level.[86]

The development of multistorey housing policy in Sweden can also be understood from a political point of view that is related to a discussion in policy mobilities literature about assemblages. According to Robinson, local policy can be understood as assemblages of local structures and policy fragments borrowed from elsewhere.[87] With this perspective, what is implemented is what local decision makers are 'arriving at' by mixing these fragments and structures. This perspective is highly relevant for understanding the development of wood housing policy in Swedish municipalities.

Examples of different policy assemblages can be found in an increasing number of municipalities. Several municipalities have adopted the concept of the 'Wood City' as part of their city branding strategy, presenting different arguments for prioritizing wood in planning. However, within this adoption of wood city policies there are many interpretations and local adaptations. For instance, the municipality of Växjö aims to highlight wooden housing in relation to a general branding strategy of striving to be 'the Greenest city in Europe'[88] by focusing on the reduction of carbon dioxide emissions from building more structures in wood. In contrast, Skellefteå emphasizes local economic growth in their interpretation of the wood city concept. By calling themselves a wood city, Skellefteå aims to encourage the local timber industry to produce multistorey housing in wood.[89] Falun is another example of a municipality that incorporates a wood city concept in their place-branding strategy, but from a social and cultural point of view. In the branding of Falun as a wood city, the cultural heritage of timber buildings is highlighted. The historic neighbourhoods in the city centre displaying old worker's homes in wood are put forward as one of the main arguments in their understanding and promotion of Falun as a wood city.[90] These three examples are just a few ways that Swedish municipalities are creating wood city assemblages when working with green place branding.

UNDERSTANDING INSTITUTIONAL CAPABILITIES THROUGH GREEN CITY POLICY

The third policy mobilities perspective on understanding the development of green city policy discussed in this article is related to institutional capabilities. Institutional capabilities encompass relational capability, knowledge capability, and mobilizing capability and have a strong impact on scope and resilience in the development of policy.[91] Previous research has shown that *relational capabilities* are required for successful green city policies to be established, as trust and collaboration between multiple types of actors is required for long-term and resilient green city policy.[92] Furthermore, *mobilizing capabilities*, which includes the ability to activate various actors to strive towards common goals, are critical in green city policy development.[93] This is particularly noticeable in matters relating to large-scale infrastructural investments, where both local and non-local actors are required to collaborate to secure necessary capital investments.[94] *Knowledge capabilities*, understood as the pooling of timely and locally relevant information and new ideas, are highly relevant in green city policymaking and finding common points of reference for public-private partnerships.[95]

Relational capabilities in the Swedish wood housing industry are primarily built through various forms of formalized networks and events (described above). Some of the networks, such as Trästad Sverige, have a rather tight social structure characterized by a high degree of familiarity among its members and a strong discourse that building multistorey housing in wood is both rational and preferred. Other networks are more loose and centre on particular projects or events such as the annual 'Ingenjörsmässigt byggande i trä' (Timber Construction from an Engineering Point of View)—hosted by the timber industry lobby organization Swedish Wood and the architectural network TränätverkA. These networks often focus on learning about the possibilities of building from wood, and a discussion of whether or not wooden housing is possible or advisable is reoccurring. Several professionals working in the wood housing industry, who were interviewed for this project, described the importance of being active in both of these types of networks for various reasons. The tighter networks function as a source of support, as an 'inner circle' among peers, and aim to form a collective force in terms of political influence and impact directed primarily towards the national level. The more loose networks are described as being related to building new relations and extending professional networks, learning and sharing ideas, and understanding what the main discussion and potential doubts among 'curious outsiders' are.

Knowledge capabilities are highly relevant and are constantly being redeveloped through the various activities involving different wood housing actors. For example, many manuals and how-to-guides covering different aspects and techniques of designing and building multistorey housing in wood have been published, often in collaboration among competing firms.[96] These manuals can be seen as a response to a major challenge shared by most of the companies involved in producing multistorey housing in wood, namely, finding and recruiting relevant competences. In Sweden, the professional education in architecture, engineering, planning, and construction has not incorporated wood in their educational portfolios for multistorey housing in the same way as other building materials such as steel and concrete. However, with the increasing political and market demand for more multistorey housing in wood, the strategy of the wood housing sector has been to recruit people from the traditional building industry and teach them about building houses in wood.

Another 'knowledge gap' identified by several interviewees in this project is the lack of experience and information among public officials on how

to plan for wood housing projects, especially for public housing and governmental buildings. As most zoning and physical planning in Sweden is carried out by the 290 municipalities, the lack of knowledge on how to support the construction of wooden housing through public procurement and physical planning is considered to hamper the construction of multistorey housing in wood. Through seminars and guidebooks, both public and private actors are trying to teach planners, politicians, and procurement specialists how to incorporate wood as a factor in their municipal plans. The Wood House Safaris described above also play an important role in educating both building professionals and public officials, by showcasing multistorey wood housing.

Measures have also been taken to address these identified knowledge gaps in industry and government through more structural interventions, which require mobilizing capabilities. Several of the regional universities (e.g. Dalarna University, Linnaeus University, Luleå University of Technology) now offer supplementary training for building professionals to be future 'experts in sustainable wood construction'.[97] In addition, the vocational college (eg. Yrkeshögskolan) offers a two-year training programme to become a specialist in wooden construction, and other technical colleges offer tailor-made training programmes designed to fit the competence demand of the expanding wood house sector.[98] Furthermore, some of the larger housing producers (i.e. Lindbäcks Bygg, BoKlok) and interest groups (i.e. Swedish Wood) sponsor research and professorships in wood construction at some the Swedish universities (e.g. Chalmers, Luleå University of Technology). Steps have also been taken to influence the revision of the national building regulations to promote wood as a building material.[99] This occurs in various lobbying settings, by collectively pushing for more neutral regulations in terms of building materials and for making Life Cycle Analysis (LCA) mandatory when constructing new buildings.[100]

These are a few of the myriad of combined ways in which the Swedish wood housing sector relies on institutional capabilities to increase the number of houses built from wood. Notably, public and private actors in various geographical locations and scales have recurrently joined forces almost seamlessly in a broad range of projects and events in their collective pursuit of producing more multistorey housing in wood.

CONCLUDING DISCUSSION

This article has argued for the usefulness of a policy mobilities perspective for understanding how ideas about the green city are conceptualized and formulated in urban policy. Using the case of multistorey housing in wood in Sweden, the article has illustrated why it matters for scholars outside geography to understand how policy ideas and models are formulated and mobilized. In doing so, this article has presented three perspectives on how multistorey housing is being conceptualized as a solution to building green cities in Sweden.

First, policy mobilities perspectives aid in the understanding of how green urban policy is formed as a *practice*. Through study tours, conferences, workshops, and awards, policy mobilities are a central dimension of how ideas and policies about multistorey housing in wood are formulated and shared among different actors and networks that are active in the Swedish wood housing sector. Second, policy mobilities are relevant to understanding the process of how ideas and perspectives on multistorey housing in wood are *developed as policy*. Similar to the imprecise definitions of green urban policies, the definitions of what constitutes (good) wood building policies are rather fluid, which makes it ideal for cherry-picking. The arguments from stakeholders that are active in the Swedish wood housing sector regarding *why* and *how* multistorey housing in wood can be considered sustainable include a range of perspectives—such as carbon dioxide emissions and the workplace conditions for those building the houses. The line of argumentation is also somewhat flexible, and the breadth of the argument varies depending on who is the target audience. In a wider perspective, this assembling of policy perspectives and angles can provide an understanding as to why green urban policies seem to be in continuous transformation and vary between different places.

Third and finally, policy mobilities play a part in understanding how the *institutional capabilities* necessary for implementing wood house policies are formed and how they contribute to the understanding of multistorey housing in wood as a green city strategy. Through relational capabilities, wood housing networks of various shapes and sizes have been created. These networks collectively aim to increase the pace of wood building in Sweden as well as the knowledge diffusion about how to build wooden houses. Some of the more dense networks not only share information among their members but also aim to influence policy formation on the national level. Knowledge

capabilities are formed through collaborative action between various stakeholders aiming to address the gaps in terms of professional know-how on how to plan for, design, procure, produce, and maintain multistorey housing in wood. To take more long-term measures to balance out the current differences between concrete, steel, and wood in academic and professional education, mobilizing capabilities focus on traditional educational institutions and stakeholders active in the Swedish wood housing sector. The investments from wood house stakeholders in both research and education at some of the Swedish universities exemplify such initiatives.

In conclusion, one might reflect further on *why it matters* to adopt a policy mobilities perspective on the conceptualization of ideas for green urban policy. One way to address such a question is to argue that there is a need to be mindful of policy mobilities when interacting with(in) the processes producing practice, policy, and institutional capabilities relating to green cities, as these processes actively contribute to reproducing and circulating certain championed ideals and perspectives. Are there truly universal truths that are considered 'good' or 'best' in green urban policy? Does one size truly fit all, and how is that size decided? Is there a risk of overlooking good ideas that (currently) are not being identified as best practice or are not located in places understood as frontrunners? Being mindful of what examples and places are being reproduced as good or best practice also makes it easier to look for good examples elsewhere. These issues should be considered when aiming to understand how to build a green city.

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THE PAST IN THE FUTURE: INVESTIGATING VALUES OF CIRCULARITY

Birgitte T. Eybye and Lars N. Bock

ABSTRACT

In the past, buildings and built structures were reused and transformed and, as a consequence, they had a long lifespan and materials degraded very slowly. With modernism, however, building changed and architectural structures became part of the throwaway culture. In connection with social transformation towards sustainable development and the future prediction of scarce and expensive resources, it is important to bear in mind that existing buildings and built structures form an immense material legacy and harbour great potential for circularity.

This research examines whether theories and methodologies of architectural conservation may promote circularity in existing buildings and built structures. Consequently, the primary objective is to investigate how readings and analyses of the (historic) building fabric and the assessment of values can develop and qualify circularity in existing buildings. A further objective is to challenge and broaden our understanding of values related to circularity.

The first part of the article explores the development of values in architectural conservation with a view to exploring circular values. To achieve this, the article will present a number of case studies. The second part of the article comments on the extent to which values-based methodologies of architectural conservation have the potential to aid future circularity in existing buildings.

KEYWORDS

Circularity, values, transformation, conservation

BACKGROUND

Buildings and built structures have been modified and transformed at all times throughout history. In relation to building, the notion of transformation ranges widely from deliberate intervention to decay (no intervention). The former includes a number of different approaches, such as repair, conservation, modification for new uses, restoration, retrofitting, reuse of structures, and deconstruction for the purpose of reuse of materials for new buildings. This article uses transformation in the sense of deliberate intervention in a building or a built structure.

Early examples of transformation are the ancient Roman buildings, such as the Pantheon, which was restored by Hadrian in the second century AD[1] and later consecrated as a church. On this occasion, cartloads of relics of martyrs were interred in a huge reliquary, which was originally a basin from the Baths of Agrippa. It is most likely that the new function saved the Pantheon from being demolished, but, nevertheless, the building was stripped of its assets such as the gilded bronze roof.[2] Furthermore, working with existing structures and buildings seems to have been a normal site condition for past architects. For instance, most of Leon Battista Alberti's work was with existing buildings and structures, and his design for the facade of Santa Maria Novella illustrates the fine interaction between old and new.[3] Transformation and reuse were also common practices in vernacular architecture. An example of this is the large number of farms relocated from their village plots and reconstructed on new sites in the context of the Danish agrarian reforms of the late eighteenth century. The vast majority of the relocations took place within a span of circa thirty years, and this was possible due to the construction method of half-timbering that enabled disassembly and thereby an extensive reuse of building materials and elements.[4]

In consequence of past transformations and reuse, buildings and built structures had a long lifespan and materials degraded very slowly. It is, however, highly probable that transformation and reuse primarily occurred for symbolic or rational reasons, as buildings and built structures represented material and economic resources. With the advent of modernism, however, building changed radically and existing buildings and structures were regarded as a creative constraint.[5] During his tenure as head of the Bauhaus, Walter Gropius expressed that

> . . . we call for a change in the current practice to erect buildings to last for hundreds of years. In this day and age buildings become obsolete much faster than in previous generations. For this and economic reasons we argue that the lifetime of a building should be limited.[6]

Modernism's approach to the lifetime of buildings anticipated the throwaway culture, which conflicts with the present need for sustainability. Subsequent to the so-called Brundtland Report of 1987, it was realized that building use huge amounts of energy. Since then, technology has made it possible to construct buildings with very low usage of energy, but that is just one aspect of sustainable building. Other aspects relate to building materials, including their resource consumption and the enormous amounts of waste generated by building,[7] which stands in marked contrast to the prediction of scarce and expensive resources in future building.[8] Césare Peeren and Superuse Studios address the problem by stating:

> We think ingenious, beautiful and functional architectural and social design solutions can be created using existing resources, materials and systems. Everything is already there, we just have to see and utilise it. In this way we can transform to a sustainable society and limit the impact of architecture and design.[9]

Following this, the existing buildings and built structures form an immense material and economic legacy,[10] and offer great potential for circularity. Moreover, according to estimates, between 50 and 80 per cent of future architects' commissions will be in the field of transformation.[11] In order to achieve this goal, it is important to investigate methods that promote circularity in buildings and built structures for the purpose of managing them in a sustainable way.[12]

INTRODUCTION: AIM OF RESEARCH AND METHODOLOGY

As mentioned above, the transformation of buildings and built structures corresponds with the perception of buildings as resources. In the conventional sense, a resource is the supply of something (useful), and it, therefore, represents a value, which can be either material or immaterial. Subsequently, notions of values and their assessment are relevant to any discussion on circularity in existing buildings and cities.

The objective of architectural conservation is to lengthen the lifespan of a heritage building, and it often implicates modifications such as fitting in a new function. Many heritage buildings exist today because they have been subject to alterations and transformations during their lifetime, and they are therefore examples of circularity. In relation to this, it is important to note that the (historic) modifications and additions to the building often form the architectural whole, which we appreciate today. Furthermore, architectural conservation is a values-based activity,[13] and it concentrates primarily on heritage buildings and their significance in the form of values and how to preserve them. Hence, a number of theories and methodologies have been developed within this field in order to recognize different types of values in heritage buildings via analyses and assessments.

This research investigates whether theories and methods of architectural conservation can be developed and applied in existing buildings and built structures that may not necessarily be heritage with the aim of promoting circularity. Consequently, the primary research question is: *How can readings and analyses of the (historic) building fabric and the assessment of values develop and qualify circularity in existing buildings and built structures?* A secondary research question is: *How can we challenge and broaden our understanding of values by critically examining value assessments in conservation practice in order to suggest the application of values related to circularity in future conservation and transformation?*

The article initiates an investigation of the theoretical and analytical framework of the research. First, values and circularity are examined, which includes a survey of the different sets of heritage value typologies in the history of modern architectural conservation, as this knowledge is essential to any discussion on the potential use of value assessment and value development in relation to circularity. On the basis of this, it is argued that values are social constructs and that values assessment is a dynamic tool. Moreover, the survey identifies a number of values in conservation practice. These values are part of the analytical frame on which the research is grounded. Next, the article presents a number of case studies within the field of transformation in order to explore circular values in architectural practice. The case studies have been selected to represent different types of circularity—namely buildings, built structures, and materials. Lastly, this section concludes by discussing the results of the case studies, including the identified values.

The second part of the article investigates the potential application of the values-based methodology of architectural heritage to existing building and built structures (that may not be heritage) with the aim of increasing circularity in such buildings. This is based on the examination of values and the results of the case studies of the first section, and on methodologies of architectural conservation.

The main sources utilized in this article are theories on value assessment in architectural conservation and general literature on architectural heritage. The case studies comprise authors' empirical studies, site visits, interviews with architects and owners, literature, including Internet resources, along with other sources, such as drawings.

VALUES IN ARCHITECTURAL CONSERVATION

Values are the key issue in architectural conservation,[14] but what is a value? According to Randall Mason, heritage values refer 'to the qualities and characteristics seen in things, in particular the positive characteristics (actual and potential)'.[15] Jukka Jokilehto describes 'value as a social association of qualities to things'.[16] On the emergence of values, Mason writes that 'Values are produced out of the interaction of an artefact and its contexts; they don't emanate from the artefact itself'.[17] Similarly, Sílvio Zancheti and Jukka Jokilehto explain that 'values are social categories defined in a cultural context, and not natural attributes'.[18] Furthermore, Zancheti and Jokilehto elaborate on the attribution of values, which can appear in two ways. First, the attribution of values can be an individual process and, second, values can be established on a social basis over long periods of time. The latter 'values are in constant transformation . . . following the movements of the cultures of societies'.[19] In parallel to this, the Burra Charter states that 'Cultural significance [value] may change over time and with use'.[20]

Based on these descriptions and definitions, and following John Pendlebury, Laurajane Smith, Zancheti, and Jokilehto,[21] this article draws on the theoretical position that values are social constructs. Consequently, values are not intrinsic but ascribed to the building or place as qualities or significance by different individuals or groups and are thus changeable.

Development of Sets of Heritage Values

In the following, sets of heritage value typologies are presented. The selection has been made in order to provide an overview of values in the history of

modern architectural conservation and to present a range of different types of values. Hence, the overview is not an exhaustive list of set of heritage values. The discussion of approaches to architectural heritage and inherent values gathered speed in the second part of the nineteenth century. In 1903, Alois Riegl published a text called 'The Modern Cult of Monuments: Its Essence and Its Development', which is generally considered to be the first 'formulation of values-based preservation'.[22] In this text, Riegl introduces five values, see Figure 1, and he is fully aware that the so-called 'commemorative values' ('age value', 'historical value', and 'deliberate commemorative value') often conflict with the so-called 'present day values' ('use value' and 'newness value').[23]

Works on values in architectural conservation include texts by Randall Mason and Aylin Orbaşli. For instance, Mason investigates values in his text called 'Assessing Values in Conservation Planning: Methodological Issues and Choices'. On the basis of a survey, Mason makes a typology and divides values into two major categories: sociocultural (the so-called traditional values of architectural conservation) and economic values.[24] The economic values overlap with the social values, but the first ones are usually 'conceptualized in a fundamentally different way'.[25] In accordance with developments within the field, Orbaşli lists no less than nineteen values in her book called 'Architectural Conservation' and points out that the list is not exhaustive.[26]

Alois Riegl (1903)	Burra Charter (1979-2013)	Randall Mason (2002)	Aylin Orbaşli (2008)	Birgitte Eybye (2016)	Inger & Johannes Exner (1972-2007)
Age value Historic value Deliberate commemorative value Use value Newness value	Aesthetic value Historic value Scientific value Social (including spiritual, political, national, other cultural)	Historic value Cultural/ symbolic value Social value Spiritual/ religous value Aesthetic values Market value Nonuse value Existence value Option value Bequest value	*Among 19 different values:* Architectural value Educational value Local distinctiveness Technical value Townscape value	Sustainability value	*So-called 'keys' to understand a (heritage) building* Originality Authenticity Identity Narrativity --> narrative value

Figure 1. The diagram provides an overview of sets of heritage values and illustrates the development of such within the field of architectural conservation. Please see references for additional information on literature sources. Diagram by Birgitte Eybye.

Danish contributions include Inger and Johannes Exner and Birgitte Eybye. In 1972, the Exners were chosen to conserve the ruin of Koldinghus Castle, and before the work began, they formulated their own theory of conservation, which is based on four 'keys'. The term 'key' was chosen because keys '. . . can open up a clearer and more differentiated understanding of the character of a historic building'.[27] Even though the Exners insist that the keys are not values, some of them are applied as such in Danish conservation practice, in particular narrativity. Narrativity relates to traces and layers (different periods, historic entities or remains, details, etc.) of the building, which enable the observer to read the history of the building.[28] Lastly, in 2016 Birgitte Eybye suggested sustainability[29] as a value in the conservation of Danish vernacular architecture on the basis of her PhD thesis. This research demonstrated that sustainable aspects, such as resource savings and securing long lifespans, were common sense in preindustrial vernacular dwellings and, hence, that sustainable aspects ought to be part of the future conservation of such heritage.[30]

This section has outlined a number of heritage value typologies. First, it is clear that the field of values in architectural conservation has developed and broadened since Riegl made the first contribution. For instance, sociocultural and economic values are now acknowledged to coexist in heritage. Hence, architectural conservation practice takes into account that 'buildings and places have different kinds of values to different stakeholders'[31] and that different values in a building may conflict. Second, developments within the field of values indicate that value assessment is a dynamic tool, which can be adjusted to different types of heritage. On the basis of this, the article at hand argues that values can be constructed with the aim of promoting and managing circularity in existing buildings and built structures. Moreover, this approach seems to be in accordance with Zancheti and Jokiletho expressing that 'Things or objects are valuable because they are socially useful and are important for the process of reproduction of society'.[32]

Values and Circularity

As point of departure for the investigation of circular values in the following chapters, the notions of circular economy and circularity are briefly described. The present economic system is usually called 'linear', as raw materials are used for the making of products, which are then thrown away after use. In contrast, the circular economy is

> . . . characterised . . . as an economy that is restorative and regenerative by design and which aims to keep products, components and materials at their highest utility and value at all times, distinguishing between technical and biological cycles.[33]

Moreover, the circular economy is based on three principles, among which the second includes circularity, given the aim of 'circulating products, components and materials at the highest utility . . . and extending product use cycles'.[34] Consequently, circularity in the built structures and buildings has resemblance to reuse and transformation. On a more detailed level, circularity is likely to comprise of flexibility and adaptability (e.g. the spatial, and/ or structural properties of the building that enable new functions to be fit in) and design for disassembly (such as reuse of building components and materials in the same or in a new form).[35] Therefore, examples of circular values may be spatial, structural, and use value.

CASE STUDIES

This research investigates how readings and analyses of the (historic) building fabric and the assessment of values can develop and qualify circularity in existing buildings and built structures. Hence, such building is considered to be the primary source of the research. Circular values are expected to be embedded in the building, for which reason the case study methodology was chosen. Case studies are well qualified to produce knowledge on a phenomenon (circular values) through a number of cases (buildings).[36]

The cases have been selected, so they represent three types of circularity, as different types of cases are expected to identify different types of circular values. The types of cases are built structures, buildings, and building materials and, in this context, built structures are understood as a complex of buildings and other constructed facilities. Moreover, attempts have been made to select cases that represent different materials. For reasons of practicality, such as site visits, the cases are situated in Denmark.

Each case study comprises a description and an analysis, which identifies the values that enabled or encouraged the transformation. In doing so, the analytical framework draws on the survey of values in Section 3. Furthermore, literature and other sources of information are used.

Circular Values in Built Structures

Spinderihallerne, Vejle

The Spinning Mills are situated at the heart of Vejle's historic working-class district, and they were constructed in 1896. In 1924, after being destroyed by a fire, they were rebuilt as a ferro-concrete structure. Just after the year 2000, all activities in relation to the spinning mills ceased, and the Municipality of Vejle decided that the mills should be preserved for several reasons. First, the spinning mills represented Vejle's historic cotton industries and, second, the buildings were well preserved, still having their original structure. Consequently, the spinning mills were given a new function in accordance with the particular spatial structures of the buildings, and the site was transformed into a cultural centre for creative businesses by Schmidt, Hammer & Lassen Architects between 2004 and 2013. This transformation included fitting in new functions, such as a new 'arrivals hall', which connects the two nearby streets and is thus a modern urban area within the spinning mills. The architect and then manager of Realdania, Hans Peter Svendler, stated that the vision was to demonstrate how to revitalize a historic, industrial complex. Furthermore, the intervention should be of high architectural quality and should harmonize with the characteristic buildings.[37]

In 2011, the second phase of the project was initiated. This phase comprised the transformation of the so-called Boiler Building of 1940 into accommodating the new Center of Design-Driven Innovation.[38]

The Spinning Mills of Vejle exemplify the reuse of existing structures, and the transformation was carried out for several reasons. First, the spinning mills were symbols of Vejle's former cotton industries (symbolic value and historic value). Moreover, the buildings were located in proximity of the city centre (location value) and were almost original in appearance (architectural value). Finally, the buildings including the ferro-concrete structure were suitable for transformation (spatial value and structural value).

Papirfabrikken, Silkeborg

The Paper Factory was founded in 1844 by the Gudenåen River, in Silkeborg, as the water formed an important energy source and means of transport. Subsequently, the town of Silkeborg grew up surrounding the Paper Factory. After its establishment, the factory developed into a large industrial complex, which comprised many different building types. These types included industrial buildings of different architectural styles in accordance with their time

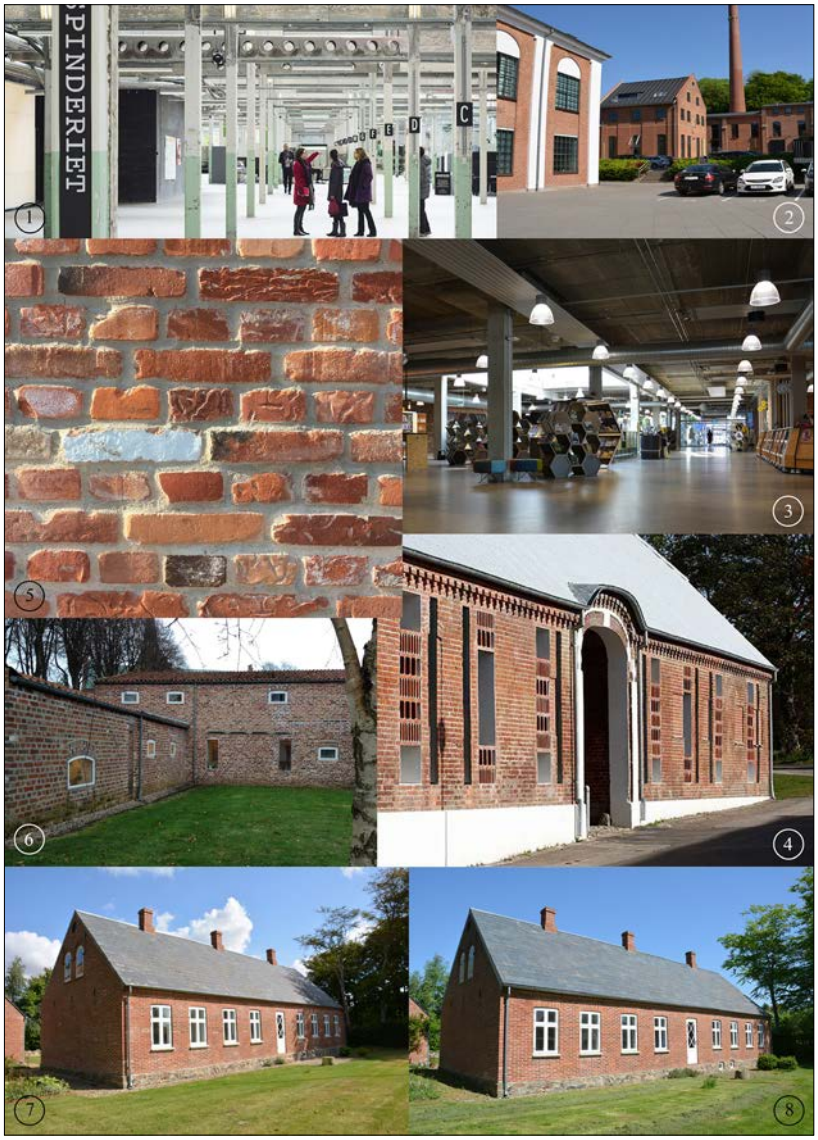

Figure 2. This collage displays the seven cases. 1. The Spinning Mills, Vejle. Photo: Schmidt/Hammer/Lassen/Architects. 2. The Paper Factory, Silkeborg, consists of brick buildings with different architectural expressions. Photo: Birgitte Eybye. 3. The Herning Library building was originally a department store and later a supermarket. Photo: Birgitte Eybye. 4. The Syvager Farm in the village of Lem was transformed into social housing. Photo: E + N. 5. The facade of Frederiksbjerg School, Aarhus, has a warm glow and the patina of the bricks narrates the former use. Photo: Lars Bock. 6. Nordentoft's House, Løgumkloster, is built of reused bricks from local houses and farms that have been demolished. Photo: Birgitte Eybye. 7. + 8. Toftevej 13, Skjern. The photo on the left was taken in 2014 before the house was roofed with reused slates in 2017, and the one on the right was taken in 2018. Photos: Birgitte Eybye. For additional information on the images, please see the notes.

of construction and tied tenancies for office workers and labourers. In 2000, the Paper Factory closed down. Already at this time, it had been decided to develop the site into a new urban centre of business companies, cultural institutions, and residencies. The area of the factory, including open spaces, covered approximately 100,000 m^2, and the residential area of the tied tenancies was about 20,000 m^2. It was decided to preserve and reuse a majority of the factory complex, equal to around 27,000 m^2, whereas circa 14,000 m^2 of the architectural structures, such as recent storage buildings and small connecting buildings, were to be demolished. The aim of this was to create sufficient daylight conditions for the preservation-worthy buildings and to clear the sites around the characteristic buildings. In accordance with the development plan of the site, new buildings, such as residential buildings and a cultural centre, were constructed.[39]

The Paper Factory of Silkeborg is a large-scale example of a factory site transformed into an urban centre (location value). The emergence of Silkeborg as a town is related to the establishment of the Paper Factory (symbolic value and historic value). Moreover, the factory complex consists of buildings with architectural qualities that enable transformation (architectural value, spatial value, and structural value).

Circular Values in Buildings

Herning Bibliotek, Herning

In 2012, the Municipality of Herning decided to move its main library to the former Schou-Epa Building located at the pedestrian street in the city centre. This building was constructed in 1968 as a department store, later converted to a supermarket, and in 2012 it had been empty for several years. In the transformation process from supermarket to library, time and money were saved by retaining the building, including its original concrete structure, instead of demolishing it. This solution also reduced the carbon footprint of the project considerably. Other elements and details of the original building were also preserved in the common interests of the environment, economy, and aesthetic aspects. For instance, the facade was given a 'friendly' expression adding corten steel, and the old concrete staircase was given a wooden covering. In 2015, the Library of Herning was granted the so-called 'Renover Price' for the best Danish renovation of the year. In this connection, the prize committee, which included chairman architect Gösta Knudsen, stated 'that an ugly 1960s concrete building had been transformed into a hip library'.[40] The overall aim of the project was to reinvigorate the city centre by placing a

large public library that connects the pedestrian area with the bus station and the train station. According to the library statistics, the number of visitors has tripled since the move to the city centre.[41]

The case of the Herning Library exemplifies how an 'ugly' building with apparently no qualities, except for the location by the pedestrian street in the city centre (location value), can be transformed into a 'hip' library. In doing so, new architectural layers were added to enhance the qualities of the building (see above). A precondition was that the building and its load-bearing concrete structure could accommodate the transformation (use value, spatial value, and structural value). Reuse of the building saved time and money (economic value) and reduced the carbon footprint (environmental value).

Syvager, Randers

Originally, Syvager was a farm situated in the village of Lem near the city of Randers. Lem and the other nearby villages, such as Tjærby and Vestrup east of Randers, are all characterized by a string of four-winged farms, which form a special village structure. Changes in agriculture to large-scale production methods have, however, resulted in many unused farms, exposing a large number of empty farm buildings to the risk of decay and demolition,[42] including Syvager. Syvager is a four-winged farm, built of red bricks in the second half of the nineteenth century. In accordance with the contemporary architectural style, the masonry was given meticulous details. In 2009, Syvager was decaying and in danger of demolition, but instead the farm buildings were transformed into fourteen social housing flats by Exner Architects. The fourteen flats (70–135 m^2) are distributed on the four wings, and there has been much individual adaption. The architect Anna Mette Exner explains that the intention was not to do a romantic restoration, but rather to pursue a rational update, with functionality as the primary objective. The project had a tight budget, as it was carried out within the national economic framework for social housing. Hence, unconventional solutions and cheap materials were chosen. For instance, the architects decided that the masonry should only be repaired to an acceptable degree. New doors and windows were placed as required by functionality and not in accordance with existing holes.[43]

The Syvager Farm transformation addresses the problem of farm buildings no longer in use. The farm is part of a historic environment (historic value) and a village structure (townscape value). Next, the farm buildings were worthy of being preserved to some degree (architectural value and cultural value).

Moreover, the buildings were suitable for a transformation, including fitting in new and more doors and windows (use value, spatial value, and structural value). Finally, the project was carried out within a tight economic frame (economic value), which indicates that transformation into social housing can compete with the construction of new social housing.

Circular Values in Building Materials

Frederiksbjerg Skole, Aarhus

Frederiksbjerg School was designed by Henning Larsen Architects in corporation with Hoffmann, GPP Archiects, Møller & Grønborg, and Niras, and it was built in 2016. Distinctive of the school is that the facades are built from approximately 400,000 recycled bricks, of which some come from the Sct. Annagade School (the former school on the site) and the old county hospital of Aarhus. The recycled bricks were a bit difficult to work with, as they differ in size compared to new standard bricks. Moreover, the recycled bricks cost more than new standard bricks. As the recycled bricks are from different buildings, the shades vary and some have traces of plaster, lime washing, and paint. On this subject, the architect Margrethe Grøn of Henning Larsen Architects stated that 'the extra difficulty increases the value of the building many times. The facade has a warmth and a glow, which is not seen in new brick buildings.'[44] Furthermore, she explains that the use of recycled bricks from the former school adds a story to the new school and, finally, recycled bricks have lower CO_2 emissions compared to the production of new bricks.[45]

Frederiksbjerg School is an interesting example of the use of recycled bricks on a very large scale. The recycled bricks have been selected for several reasons. First, they are still versatile (use value) and, second, they have been chosen for their aesthetic qualities (aesthetic value). Next, the recycled bricks also form a connection to the former Sct. Annagade School and other old buildings in Aarhus, in particular due to the traces of their former use (narrative value). Finally, using recycled bricks reduces CO_2 emissions (environmental value).

Nordentofts Hus, Løgumkloster

Nordentoft's House was originally a dwelling situated in Løgumkloster in the southwest of Jutland and was designed and built by the architects Inger and Johannes Exner in 1974. Client Søren Nordentoft had a predilection for the traditional building culture of the region, which was characterized by red bricks. Consequently, the client had personally collected a large number

of bricks in different sizes—varying from medieval large bricks to standard bricks. All of the bricks came from local houses and farms that had been demolished. Such buildings were typically made of bricks laid in lime mortar, making it easy to clean the bricks for reuse. The architects designed a house based on the types of bricks and their differences, and in consideration of the context, the nearby abbey church and its surroundings. It turned out, however, that not enough bricks had been collected for the proposal, and the project was postponed. The client continued to collect bricks, and after a number of years, he inquired again, now having a sufficient amount of bricks. The architects have created a building with the craftsmanship and the inherent constructional characteristics of bricks as its point of departure. Later on, Nordentoft's House was extended, and the use of the house was changed into a Theological Pedagogical Centre in the years 1994–97.[46]

Nordentoft's House is an early example of the activities of a private building owner with the aim of combining ideas of reuse (this intention is considered equal to what we know as sustainability and, thereby, sustainable value), aesthetics (aesthetic value), and considerations of a particular building culture (cultural value and architectural value). The transformation from dwelling into the Theological Pedagogical Centre demonstrates the architectural qualities of the building (use value and spatial value).

Toftevej 13, Skjern

Toftevej 13 is a former farmhouse built in 1898. The design and materials of the building are characteristic of the period and the region: a long house built of bricks with a slate roof. The building owners, Søren Knudtzen and Birgitte Eybye, bought the house in 2008, then knowing that the roof probably had to be renovated within ten years, as the nails had corroded. The owners wished to retain the architectural expression of the house, but a new slate roof is rather expensive. Moreover, new slates are thicker and consequently heavier than the old slates. As a result, the owners started looking for an old roof of 14-inch slates to supplement the original slates, as the plumber estimated a loss of 10 to 30 per cent of the slates in connection with taking down the roof. In 2016, the owners bought 1,200 slates for DKK 2,400 from a nearby house that was to be demolished, and in 2017 Toftevej 13 was roofed. The owners emphasize that the house has retained its architectural identity and that the reused slates have a low environmental impact. Finally, the owners consider the roofing project to be socially sustainable because the vast majority of the costs go towards paying local craftspeople for their work and not towards new materials.[47]

The case of Toftevej 13 represents reused materials on a small-scale, idealistic basis. The roofing project with reused slates (use value) aimed at retaining the architectural expression of the house (aesthetic value and architectural value) with slates that were not too heavy for the roof construction (structural value). Due to the owners' efforts of taking down the supplementary slates themselves, the project was affordable and the reused slates and the money spent on local craftspeople exemplify environmental, economic, and social sustainability (sustainable value).

CASE STUDIES: FINDINGS AND DISCUSSION

The purpose of the case studies was to investigate different types of values related to circularity in existing buildings. Hence, the case selection took its point of departure in three different types of circularity—namely in built structures, buildings, and building materials. On a secondary level, attempts have been made to select cases that represent different materials. The types of cases and the identified values will form the basis of the discussion.

Initially, the identified values of the case studies comprise aesthetic value, architectural value, spatial value, structural value, use value, location value, townscape value, cultural value, historic value, symbolic value, narrative value, economic value, environmental value, and sustainable value (see Figure 3).

The three types of cases demonstrate both similar and different approaches to circularity. From a heritage point of view, the transformation of buildings and built structures is important in order to both retain and develop the built environment. In relation to this, the Paper Factory, the Spinning Mills, and the Syvager Farm were all considered to hold heritage values (historic value, symbolic value, architectural value, cultural value, and townscape value). Values related to heritage seem to aid transformation. It is, however, highly likely that the use value, structural value, and spatial value of the built structures and buildings were equally important, along with the transformations being economically affordable. The Syvager Farm and its tight economic frame exemplify this.

Transforming built structures and buildings often includes the addition of new architectural layers. Such contemporary layers narrate the transformation and, frequently, also aim to improve the building on an architectural or aesthetic level. This is the case in the Spinning Mills (where the new additions both contrast with the old fabric and harmonize with the original building[48])

and in the Herning Library (where the transformation improves the building on an architectural level, see quote in Section 4.2.1). Judging the quality of contemporary layers can be difficult, but seen from the perspective of circularity, transformation including new layers is better than demolition.

The vast majority of the seven cases are situated in urban contexts, and it is most likely that such a location influences the potential for transformation instead of demolition.

Three overall materials—concrete, brick, and slate—are found in the cases. Concrete is reused, being the load-bearing construction in the selected built structure and building, whereas bricks are reused at all levels, thus it is a very flexible material with a great potential for circularity. For instance, the Syvager Farm demonstrates the flexibility of masonry, as new holes are easily added and old ones walled up in accordance with the new function. Slates are reused on the material level.

Reuse of materials either seems to take place as small, idealistic buildings or in large projects, where sustainable aspects are prestigious.[49] Consequently,

Case / Value	The Spinning Mills (2004-13)	The Paper Factory (2000-)	The Herning Library (2013-14)	The Syvager Farm (2009)	Frederiksbjerg School (2016)	Nordentoft's House (1974)	Toftevej 13, Skjern (2017)
Aesthetic					X	X	X
Architectural	X	X		X		X	X
Spatial	X	X	X	X		X	
Structural	X	X	X	X			X
Use			X	X	X	X	X
Location	X	X	X				
Townscape				X			
Cultural				X		X	
Historic	X	X		X			
Symbolic	X	X					
Narrative					X		
Economic			X	X			
Environmental			X		X		
Sustainability						X	X

Figure 3. The diagram provides an overview of the identified circular values of the case studies. The grey-lined boxes show similarities between cases (similar values), whereas the dotted-line ones display similar values to a certain degree. Diagram by Birgitte Eybye.

there is a huge potential for use of recycled materials in general building. Yet, an important precondition for the reuse of materials is that they can be separated, for instance slates fastened with nails or bricks laid in lime mortar and not cement mortar. In parallel to this, it is probable that buildings constructed after 1945 may prove difficult in terms of material circularity. This is due to materials that are virtually impossible to separate and also to the increased number of building materials, including toxins.

In relation to the cases that concern materials, it is also interesting to note that the reused materials are considered as a means to either retain or enhance the aesthetics of the building in question.

Furthermore, in an overall perspective, a development in terms of sustainability is evident in the selected cases—apart from the case of Nordentoft's House. Sustainability or environmental value is not given importance in the cases before 2010, and these transformations appear to have been carried out for cultural and architectural reasons, as well as for the symbolic and historic value of the site or building. In contrast, sustainable aspects are emphasized in the recent cases. An example of this is the Herning Library, in which the transformation had economic and environmental motives. Additionally, if the transformation of the Paper Factory of Silkeborg had taken place today, then it is likely that the materials of the demolished buildings, such as bricks, would have been recycled in the new buildings on the site.

On the subject of sustainability, circularity may promote not only environmental sustainability, but also social sustainability as seen in the case of Toftevej 13. At present, however, there seems to be a conflict of interest between socioeconomic and environmental aspects. For instance, recycled bricks cost more than new ones, as in the case of the Frederiksbjerg School. In the future, resources are expected to be scarce and expensive (see Section 1), which should encourage circularity. Transformation and demolition/disassembly with the aim of reuse and recycling will be difficult to outsource to overseas countries with low incomes.

Lastly, the case studies and this discussion demonstrate that the different types of values in a building often conflict, as already pointed out by Alois Riegl in 1903. These conflicts primarily appear between the so-called sociocultural value, the economic value, and the use value. For instance, the aesthetic value and the environmental value were prioritized in the Frederiksbjerg School,

whereas the Syvager Farm emphasized economic value. It is also likely that the architectural value of Herning Library would be more appreciated in the future. All in keeping with Pendlebury's comment on buildings having different values to different stakeholders (see Section 3.2). Moreover, it is highly likely that sustainable value(s) will be given more attention in future transformation.

To summarize, the cases were selected with the aim of identifying different types of circular values, and a number of different circular values were identified. The most important findings of the case studies involve a development towards sustainable values; reuse of materials seems to happen in small-scale idealistic projects and prestigious projects, thus leaving a large potential for reuse in common building; and, finally, used materials are also chosen for aesthetic reasons.

METHODOLOGY FOR INVESTIGATING CIRCULAR VALUES IN EXISTING BUILDINGS

The results of the case studies comprise a number of circular values and, moreover, they demonstrate a potential for circularity in existing buildings, particularly in an ordinary building context which does not involve prestige or idealism. Consequently, this section investigates whether a values-based methodology of architectural conservation can be developed and applied in order to identify circular values in buildings and built structures. Hence, it is based on the theoretical position that values are social constructs (see Section 3); on the results of the case studies in Section 5; and on values-based methodologies of architectural conservation.

The Venice Charter of 1964 laid out the international standards for modern conservation practice. Article nine of the charter states that '. . . the restoration in any case must be preceded . . . by an archaeological and historical study of the monument'[50] in order '. . . to preserve and reveal the aesthetic and historic value.'[51] Hence, the field of architectural conservation has developed values-based methodologies regarding the conservation of buildings and built structures.

A values-based approach starts with a survey of the building or site. Such a survey often comprises measurements, archive and literature studies, archaeological investigations, and descriptions of the characteristics of the building (see Figure 4). All of the records make up a so-called documentation, on which the assessment of the values of the building or site is founded. Not

until then can the programme be set and the design process begin. The objective of the survey and documentation is to obtain an understanding of the building with the aim of preserving it for the future. Hence, the evolution and the condition of the building is investigated, which, for instance, includes the establishment of different building phases, applied building techniques, and materials.[52] Reading and analysing the historic fabric of the building is the most important source of this knowledge.[53]

This article argues that the values-based approaches can be applied and developed with the aim of aiding the promotion of circularity in existing building. As mentioned, a measuring of the building often initiates the values-based approach. Measured drawings provide an overview of the building, including its spatiality and structures and, thereby, the spatial and structural values are indicated. Today, modern tools such as 3D scanners aid the measuring process and provide a basis for transformation projects.

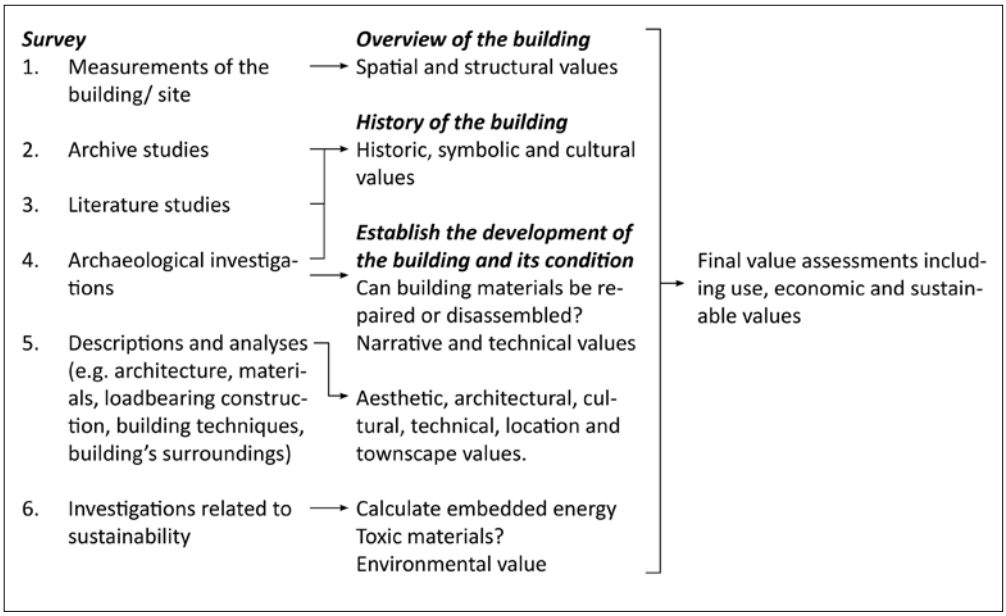

Figure 4. The diagram provides an overview of the survey (the first step in the values-based me hodology) and of how the methodology can be developed into mapping and assessing circular values. Diagram by Birgitte Eybye.

A values-based approach also comprises descriptions and analyses of the building, including the load-bearing construction, the roof, the facades, and other building elements such as doors, windows, and staircases. The descriptions also cover applied materials and building techniques. This part of the survey is usually carried out alongside building archaeological investigations in order to establish the evolution of the building phases and the building condition. Pointing forward, these records provide knowledge to set, by way of example, the aesthetic value, cultural value, and technical value of the building and its elements. Furthermore, in the case of a possible demolition/disassembly, descriptions will most likely support reuse of materials. For instance, a description of masonry will include the applied types of bricks and mortars. It is useful to know whether the bricks can be separated to make recycling possible. If not, transforming the building should be considered.

Archive and literature studies are used to indicate historic value, symbolic value, and cultural value, whereas an analysis of the buildings' surroundings can establish their location value and townscape value. The complete survey and documentation provide knowledge for establishing all of the values related to circularity in the building, such as architectural value, aesthetic value, use value, economic value, and sustainable value. Up to this point in time, the survey and documentation of the values-based approach has primarily focused on the heritage aspects, whereas little attention has been paid to sustainability. Going forward, the values-based approach to circularity in existing building and built structures should also include sustainable aspects, such as the environmental impact of new building materials versus the transformation of existing buildings and a calculation of embedded energy in the building versus energy used in the transformation. Such calculations point to the fact that, for example, a load-bearing concrete structure contains large amounts of embedded energy and is, by virtue of this fact, of environmental value.

Furthermore, although aesthetics is often difficult to measure, it should still be emphasized, for the case studies on materials indicated increased attention to this value. Aesthetic value might for instance include the use of materials that age well, as the bricks of Frederiksbjerg School, or of materials that retain the architectural expression of the building, as in the case of Toftevej 13.

It is highly likely that the outlined survey and documentation will form a meticulous basis for future transformation (and conservation) projects on the terms of the building or built structure. If the building of the intended trans-

formation possesses heritage and/or other types of values, this approach will also take these values into account in the further process of the transformation.

RESULTS AND CONCLUSION

This research has focused on exploring values in existing buildings and built structures, as they form a huge legacy and a great potential for circularity, which seems to have been forgotten in relation to modernism. As compared to other topics within sustainable architecture, this field seems under-researched.

The article examined whether theories and methods of architectural conservation could aid circularity in building. Hence, the two objectives of the research were to investigate how readings and analyses of the (historic) building fabric and the assessment of values can develop and qualify future circularity in existing building and to challenge and broaden our understanding of values related to circularity. In order to achieve these objectives, the article examined the development of values in conservation practice. The investigation showed that values assessment is a dynamic tool, which leads to the first result of the research: that values could be constructed with the purpose of promoting and managing circularity in existing building. Furthermore, the examination of values also informed the exploration of circular values in a number of case studies.

The second result of the research concerns the case studies. They identified a number of different values related to circularity in respectively built structures, buildings, and materials. The findings of the case studies included a development towards emphasizing environmental and sustainable values and using recycled materials for aesthetic reasons.

Lastly, based on the survey and the findings of case studies, the article investigated whether the values-based methodology of architectural conservation, including reading and analyses of the (historic) building fabric, could aid circularity in building. The third result outlines a values-based approach with a focus on mapping circular values. This includes the approach that calculations in regard to sustainability should be added to the survey and documentation. In doing so, the values-based approach is likely to promote circular values in transformation and conservation projects. To conclude, this research confirms that theories and methods of architectural conservation can be adjusted and developed with the aim of promoting circularity in building. This article presents the authors' initial stage of research, and further

studies will result in a more comprehensive understanding of the potential of theories and methodologies of architectural conservation in connection with circularity in existing buildings. Going forward, the next step comprises testing and developing the values-based approach in architectural practice.

NOTES

[1] Jukka Jokiletho, *A History of Architectural Conservation* (London: Routledge, 1999), p. 4.

[2] See 'Pantheon', in Den Store Danske, http://denstoredanske.dk/Geografi_og_historie/Arkæologi/Klassisk_arkæologi,_Italien/Pantheon (all URLs accessed in April 2020).

[3] Cristina González-Longo, 'Using Old Stuff and Thinking in a New Way', in *The Cultural Role of Architecture: Contemporary and Historical Perspectives*, edited by Paul Emmons, John Hendrix, and Jane Lomholt (Abingdon: Routledge, 2012), pp. 70–71.

[4] Peter Brogaard, 'Gårde og huse', in *Landbrugets Huse*, edited by Peter Brogaard, Hakon Lund, and Hans Edvard Nørregaard-Nielsen (Copenhagen: Gyldendal, 1985), pp. 52–57.

[5] Johannes Cramer and Stefan Breitling, *Architecture in Existing Fabric: Planning, Design, Building* (Basel: Birkhäuser, 2007), p. 21.

[6] Ibid., pp. 21–22.

[7] It is estimated that building makes up 40 per cent of the total consumption of resources and generates 30 per cent of all waste in Denmark. On this, see Mette Glavind, 'Undgå fælderne i det cirkulære byggeri', 10 August 2017, https://ing.dk/artikel/kronik-undgaa-faelderne-cirkulaere-byggeri-202396.

[8] Michael Lauring, 'Fremtidens bæredygtige bolig og bebyggelse—et scenarie', in *Bæredygtig omstilling af bolig og byggeri*, edited by Jesper Holm et al. (Frederiksberg: Frydenlund Academic, 2014), p. 185.

[9] Superuse Studios, quoted from Birgitte Eybye, 'Bæredygtighed i Danmarks førindustrielle bygningskultur og dens aktuelle relevans: belyst gennem studier af seks boliger' (PhD, Arkitektskolen Aarhus, 2016), p. 110.

[10] Cramer and Breitling, *Architecture in Existing Fabric*, p. 24.

[11] Around year 2005, the former director of the Agency of Culture and Palaces, Steen Hvass, gave a lecture in which he estimated that up to 80% of future building will be in the field of architectural conservation and transformation. Steen Hvass' estimate is now widespread among Danish architects, see interviews with professor Christoffer Harlang, https://politiken.dk/kultur/arkitektur/art5560927/Nye-arkitekter-vil-hellere-restaurere-end-at-bygge-nyt and Trine Berthold, former pro-rector of Aarhus School of Architecture https://www.db.dk/artikel/transformation-og-byggeri-hvordan-tænker-man-nyt-med-gammelt-interview-med-trine-berthold-og. Other estimates suggest numbers between 50 and 70 per cent (Cramer and Breitling, *Architecture in Existing Fabric*, p. 9).

[12] According to the website of Statistics Denmark, there were 4,429,646 buildings in Denmark in 2018. This huge number indicates a great potential for circularity in existing buildings. See 'Tabeller om bygningsbestanden', Danmarks Statistik, https://www.dst.dk/da/Statistik/nyt/relateret?pid=560.

[13] John Pendlebury, 'Conservation Values, the Authorized Heritage Discourse and the Conservation-Planning Assemblage', *International Journal of Heritage Studies* 19, no. 7 (2013), p. 2. See accepted manuscript, https://eprint.ncl.ac.uk/file_store/production/170878/72262E9A-52AF-439E-9A18-7E3C2EF16944.pdf.

[14] Jokilehto, *A History of Architectural Conservation*, p. 18.

[15] Randall Mason, 'Assessing Values in Conservation Planning: Methodological Issues and Choices', in *Assessing Values of Cultural Heritage*, edited by Marta de la Torre (Los Angeles: The Getty Conservation Institute, 2002), p. 7.

[16] Jukka Jokilehto, 'World Heritage: Defining the Outstanding Universal Value', *City & Time* 2, no. 1 (2006), p. 2, http://www.ceci-br.org/novo/revista/docs2006/CT-2006-44.pdf.

[17] Mason, 'Assessing Values in Conservation Planning', p. 8.

[18] Sílvio M. Zancheti and Jukka Jokilehto, 'Values and Urban Conservation Planning: Some Reflections on Principles and Definitions', *Journal of Architectural Conservation* 3, no. 1 (1997), p. 40.

[19] Ibid., pp. 40–41.

[20] Australia ICOMOS, *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*, Australia, 2013, http://openarchive.icomos.org/2145/1/ICOMOS-Australia-The-Burra-Charter-2013.pdf.

[21] Pendlebury, 'Conservation Values', p. 6; Laurajane Smith, *Uses of Heritage* (London: Routledge, 2006); Zancheti and Jokilehto, 'Values and Urban Conservation Planning', pp. 40–42.

[22] Lamprakos, 'Using Old Stuff and Thinking in a New Way', p. 420.

[23] Alois Riegl, 'The Modern Cult of Monuments: Its Essence and Its Development' (1903), in *Historical and Philosophical Issues on the Conservation of Cultural Heritage*, edited by Nicholas Stanley-Price, M. Kirby Talley, and Alessandra Melucco Vaccaro (Los Angeles: The Getty Conservation Institute, 1996).

[24] Mason, 'Assessing Values in Conservation Planning', pp. 10–12.

[25] Ibid., p. 12.

[26] Aylin Orbaşli, *Architectural Conservation* (Malden, MA: Blackwell Publishing, 2008), pp. 40–46.

[27] Johannes Exner, 'Den historiske bygnings væren på liv og død', in *Fortiden for tiden*, edited by Ellen Braae and Maria Fabricius Hansen (Aarhus: Arkitektskolen Aarhus, 2007), p. 60 (quote translated by the authors).

[28] Ibid.

[29] In her PhD dissertation, Eybye considers sustainability to be one of W. B. Gallie's 'Essentially Contested Concepts'. Sustainability is generally defined as a balance between environmental, economic, and social aspects. Within the field of preindustrial Danish vernacular architecture, sustainability includes resource savings and long lifespans. On this, see Eybye, 'Bæredygtighed i Danmarks førindustrielle bygningskultur'.

[30] Eybye, 'Bæredygtighed i Danmarks førindustrielle bygningskultur', pp. 109–20.

[31] Pendlebury, 'Conservation Values', p. 6.

[32] Zancheti and Jokilehto, 'Values and Urban Conservation Planning', p. 40.

[33] Ellen MacArthur Foundation, *Intelligent Assets: Unlocking the Circular Economy Potential* (n.p., 2016), p. 18, https://www.ellenmacarthurfoundation.org/assets/downloads/publications/EllenMacArthurFoundation_Intelligent_Assets_080216.pdf.

[34] Ibid., p. 19.

[35] Please see the call for papers for the NAF/NAAR symposium 2018 'Built Environment and Architecture as a Resource'.

[36] Bent Flyvbjerg, 'Fem misforståelser om case studiet', in *Kvalitative metoder: en grundbog*, edited by Svend Brinkmann and Lene Tanggaard (Copenhagen: Hans Reitzels Forlag, 2010), pp. 463–87; Robert K. Yin, *Case Study Research: Design and Methods* (Los Angeles: SAGE, 2014).

[37] Realdania, 'Et kæmpe levende tæppe til Spinderihallerne i Vejle', 24 November 2006, https://realdania.dk/projekter/spinderihallerne-i-vejle/nyheder/spinderierne-i-vejle---vinder-24-11-06.

[38] Realdania, 'Et kæmpe levende tæppe'; Realdania, 'Spinderihallerne i Vejle', n.d., https://realdania.dk/projekter/spinderihallerne-i-vejle/.

[39] Silkeborg Kommune, 'Lokalplan nr. 113.05 for et center-, bolig- og institutionsområde på den tidligere Silkeborg Papirfabrik', 2002, https://slks.dk/fileadmin/user_upload/kulturarv/fysisk_planlaegning/dokumenter/lp_113_05_Papirfabrikken_Silkeborg.pdf.

[40] Peter Kargaard, 'Herning Bibliotek vinder Renover Prisen', 3 September 2015, https://www.licitationen.dk/article/view/218049/herning_bibliotek_vinder_renover_prisen?ref=newsletter.

[41] Nanna-Rose Broch, 'Herning Bibliotek', 2017, https://www.danskeark.dk/content/herning-bibliotek; Kargaard, 'Herning Bibliotek vinder Renover Prisen'; Henrik Majgaard, 'Herning Bibliotek', 2014, http://www.byggeplads.dk/byggeri/kulturcenter/herning-bibliotek.

[42] There are about 60 million square metres of empty agricultural buildings in Denmark, of which approx. 30 million square metres are estimated to be worthy of preservation to some degree. On this, see: Realdania, 'Genanvend Gården', n.d., https://realdania.dk/projekter/genanvend-gaarden.

[43] Grundejernes Investeringsfond & Dansk Bygningsarv, *Renovering: 25 eksempler på vellykket renovering* (Copenhagen: GI Bedre Boliger, 2012), pp. 76–81, http://gi.dk/Publikationer/Renovering_FINALE_lowres.pdf; Troldtekt A/S, *Syvager i Lem*, n.d., https://www.troldtekt.dk/Inspiration/Referencer/Private-boliger/Syvager-i-Lem.

[44] Kristian Troelsen, 'Henning Larsen Architects bag kæmpe ordre på genbrugssten', 31 October 2016, http://www.dagensbyggeri.dk/artikel/92233-henning-larsen-architects-bag-kaempeordre-pa-genbrugssten (quote translated by the authors).

[45] Ibid.

[46] Inger Exner, 'Nordentofts Hus Løgumkloster', 2018, https://ingerogjohannesexner.dk/works/nordentofts-hus-logumkloster.

[47] This description is based on an interview with building owners Søren Knudtzen and Birgitte Eybye, April 2018.

[48] Realdania, 'Et kæmpe levende tæppe'.

[49] Another example of the large-scale reuse of bricks is the LEGO multistorey carpark of Billund. In line with LEGO's aim of sustainable action, the facades of the car park building are built of 240,000 recycled bricks from a demolished LEGO factory. See Marianne Thorø, 'Genbrug af mursten skåner miljøet', 1 February 2016, http://billundonline.dk/genbrug-af-mursten-skaaner-miljoeet/.

[50] ICOMOS, *International Charter for the Conservation and Restauration of Monuments and Sites (The Venice Charter)*, 1964, https://www.icomos.org/charters/venice_e.pdf.

[51] Ibid.

[52] Karin Andersson and Agneta Hildebrand, *Byggnadarkeologisk undersökning: Det murade huset* (Stockholm: Riksantikvaieämbetet, 1988); Lars Nicolai Bock, 'Arkitektonisk Kulturarv:

uddannelsen og forskningen', in *Eftertanker: Enzymet i den arkitektoniske kulturarv*, edited by Dorthe Bendtsen (Aarhus: Forum for Arkitektonisk Kulturarv, 2013), pp. 20–31; Cramer and Breitling, *Architecture in Existing Fabric*; Ebbe Hædersdal, 'Den bygningshistoriske undersøgelse', in *Bygningsarkæologiske Studier* (1997), pp. 35–72.

[53] Alk Friedrichsen, 'The Building Itself Is the Best Document of Its Own History: C. F. Hansens Elbschlößchen', lecture delivered at Aarhus School of Architecture, 9 September 2010, lecture notes.

EXPLORING SECONDARY RESOURCES IN AN ARCHITECTURAL PROJECT

Inge Vestergaard and Guillermo Martín Jiménez

ABSTRACT

The research aims to explore to which extent secondary resources can provide a response to architecture at a time when the building sector is overspending the use of primary resources. The research illustrates, at the scale of a neighbourhood, how natural metabolism can be transformed into a technical metabolism, pursuing it to implement industrial ecology. The investigation is multifaceted and takes its departure in the secondary resources of the Anthropocene. In order to understand the question of resources, local resource streams are studied.

The secondary resources found are salvaged and mapped. Possibilities for the integration of human resources are analysed. Inquiries on how streams of specific resources may flow in circular loops are used as design drivers. A focus on circular sustainable business models is explored. Qualified potentials are reflected in a set of design intentions. These intentions constitute the architectural case project. The findings mention the aspects found at the different research activities: from investigating industrial ecology to the concrete salvage of resources, and how to turn the resources into building components. Integration is achieved by realizing how locally found resources have the ability to narrate the aesthetics and identities of the site.

The case project illustrates an architectural design answer which relates to its context, reflects the history of our social welfare architecture, and expresses a built environmental diversity as an architectural patchwork which offers a proposal for new social facilities in the housing area. The discussion draws upon some open perspectives from other initiatives in society where industrial ecology has been used to overcome the complex questions of reorganizing already existing waste management habits.

KEYWORDS

Secondary resources, circularity, business model, assemblage

INTRODUCTION

The Danish waste statistics from the Ministry of the Environment state that the Danish building industry produces 35 per cent of all waste produced in Denmark.[1] A report made by the Ellen MacArthur Foundation for the Danish government claims that the built environment as construction and real-estate sector has major potentials for reuse and for circular economy.[2] Statistics show that 87 per cent of the building industry waste is utilized for recycling, 6 per cent is stored in landfills, and 7 per cent is burnt in the incineration plants.[3] The ruling resource treating process in Denmark is recycling, which represents a process of using a large amount of energy and labour force as well. A precondition for this research is the reuse of waste as a resource for architecture. The research investigates how the potentials of reuse in its extreme form are possible for architecture in the future. It is about identifying workflows which save resources with already inherent qualities and thereby optimizing circularity.

The research aims to explore to which extent architecture can provide a response to our contemporary overspending of resources. The research investigates how secondary resources in the building industry can play a predominant role in architecture. 'Secondary resources' are those material resources which have been used before, while 'primary resources' equal virgin materials. This technical terminology is used in the essay in order to emphasize the view of 'waste' as a 'resource'. The intention is both to create artistic and meaningful architecture and to create technical circular loops understood parallel to those in nature. The term 'nature' is used as a frame to understand the current discussion on circularity.[4]

In order to understand the building sector's complexity regarding resources, systems theory is taken into account.[5] By relating systems theory to the familiarity of ecological networks, which consists of links as inter-relations and notes as actors,[6] a theoretical platform for this research is shaped, namely to study the technological streams of resources and their relations. Both human and technological aspects are included in the architectural creation.

The Dutch office Superuse Studios sees sustainability and ecology as an affordance for the future. They claim that the answer to the problem in every architectural project relies on the demands of the users, the value for the users and the society, and the realization of it through production with an affordable economy.[7]

> [T]here just may be methods to reuse what has already been made to circumvent this waste of effort. In fact because of the sheer amount and diversity of waste, it is highly likely that at least some of all that stuff can be put to use in a new design, provided the designer has an open mind for the implications. On the other hand not every design is suitable to be made out of waste. The important thing is awareness of the interaction between design and the availability of existing materials. . . . Generally a building can be considered to consist of a hierarchy of ingredients, in which the highest grade, the building itself, has the most value added during its production process. The lowest is raw material, the kind that is produced in bulk . . . At a higher grade we find what is defined as 'material'. It is composed of raw material and has certain dimensions but not, or not entirely, the proportions and shape it will have when it has found its application.[8]

The quotation mentions dreams on how to get closer to a vast circulation of resources. Regarding reuse of resources, several initiatives have been launched recently, both in the public and the private sector. The EU directive on waste[9] has been followed by cross-industry global initiatives to help scale the circular economy.[10] These initiatives have led to a questioning of the current waste management systems. Furthermore, they point at ways of improving the existing systems, such as selecting waste at the source, harvesting materials before they are downcycled in the public waste system, and how to value waste in general.

The case project in this paper informs the research with knowledge for comparing the contemporary discussion on circular economy with the existing building practice. In other words, it is the intention to contribute to the discussion of circular resource management from an architectural point of view. That is, to consider the implications for architecture and its artistic expression of working mainly with existing buildings and materials while supporting circular business models.

The research questions are: How to identify, map, and understand the secondary resource streams and the complexity of industrial ecology? How to create and offer an architectural design that embraces local secondary resources?

METHODOLOGY

The research has been developed within recent years in the graduate studio Approaching Sustainable Architecture at Aarhus School of Architecture. The curricula of this studio have challenged the general attitude towards architecture making sustainability a main theme based on its actual relevance to society.[11] Specific working methods involving sustainable parameters have addressed research in learning methods.[12] The complexity of sustainability is implemented in the design process.[13] The designs aim at exemplifying the affordance of responsible ways of managing our resources locally.

The specific attitude in this educational approach is not different from a professional attitude to research. The mapping, the analytical work, and the design process could have taken place in an architectural studio or in a scholarly research group. The present essay is a reflection on the assignment and its results.

Since the 1970s the teaching methods of Aarhus School of Architecture have been focused on Project Based Learning (PBL). When problems are used as the starting point for an assignment, the combination of 'problem-based' and 'project-organized' approach to design will lead to PBL.[14] Years of experience show that applying the PBL method opens up many new opportunities which enrich both the project and the reflections useful for further research.[15] The architectural working method is divided into two main processes. One is to identify, to map, and to understand the problem in its complexity. The other is to create and offer a design as an answer to the problem.

The Superuse methodology is recognized for a deep understanding of how the systems of nature work. If the resources are identified and visualized, then it is possible to harvest and utilize relevant amounts of these resources in an urban area. Resources can be understood as users, urban fabrics, buildings, materials, productions, infrastructures etc. Underlying this vision, there is an understanding of society, economy, and design grounded on fundaments of sociology, biology, and anthropology as well as their inter-relations. This forms a system of interconnections.

To integrate secondary resources in an architectural project demands a systemic search for resources. To this purpose, the research applies the methodology of Superuse Studios regarding the search for streams of resources occurring near the site.[16] In addition, the studio unit studied theory on circular design strategies[17] prior to the beginning of action.

An expanded investigation of an urban area is multifaceted and grounded in the conviction that an assessment of secondary resources spreads the architectural field to territories not explored before. In fact, a spectrum of methodologies is applied in order to seek comprehensive knowledge and to prepare, investigate, develop, and finally create the architectural design.

The graduate studio visited and conducted interviews on production sites and stores located nearby in order to map the resources. Once being recognized, the resources were registered in an online database of open access.[18]

> A circular economy is an industrial system that is restorative or regenerative by intention and design. It replaces the end-of-life concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse and return to the biosphere, and aims for the elimination of waste through the superior design of materials, products, systems and business models.[19]

Through this preliminary work of awareness the students of the graduate studio became acquainted with the meaning of 'circular economy' and therefore with the understanding of the multiple networks through which resources stream in a society.

When new innovative roads are taken, it is important to conceive unique business models. The business model is significant for the content of the project and for giving new perspectives for development in a specific local context. When a Superuse project has started, it is important to create reasonable business models depending on users, resources, and an appropriate place. From different accessible resources close to this place a large amount of preliminary preparations are done. The preparations consist of interviewing the locals, identifying resources in a wide perspective, utilizing working power at the nearby area, and investigating the local municipality in its subsidizing working power. The business model, which is a project in itself, operates with local secondary resources and addresses concrete issues of the local community (Figure 1). An evaluation of the different business models was proposed and one was chosen to be developed into an architectural research project.[20]

A definition of the specific architectural intentions follows in which the context, the functional purpose, and the means of realization are described

and articulated as design parameters.[21] In the chosen specific design proposal, the purpose or functional intention is a circular business.

Interviews in the streets of the neighbourhood provided important information on the overall needs that had to be addressed. In the context studied, the most relevant challenges were a high level of unemployment and a certain degree of social segregation of the community from the rest of the city.

The means of realization of the project are based on the recovery of local secondary resources. In such an approach to architectural design, the local resources are utilized in two main ways.

The first way is as resources for the business and their manipulation, such as redesigning in some cases or energy transformation in others, for instance to create values of multiple natures. The second way in which resources are reactivated is as building materials or components and their integration into the architectural design to create values inherent to architectural expressions, such as values of utility, beauty, history, and ecology.

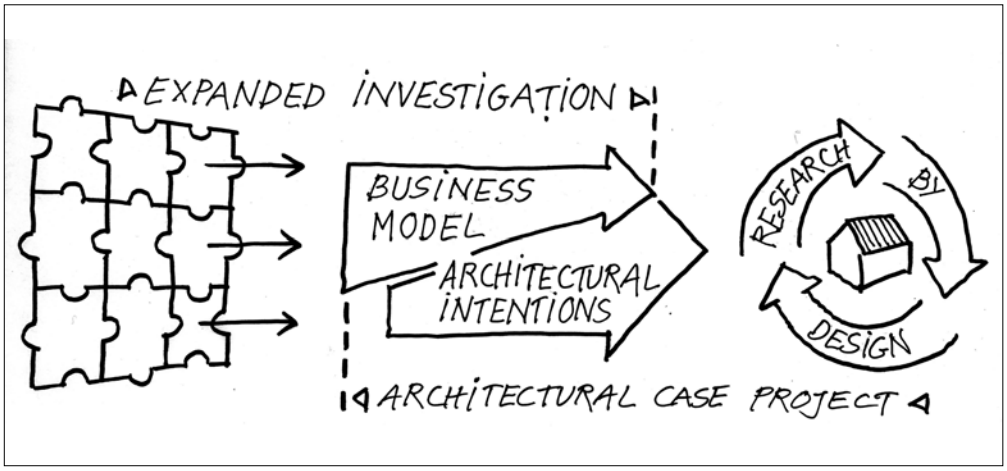

Figure 1. Working process illustrating the whole project complex and connecting the methodologies with the concrete investigation and design process for the architectural project. From left to the right: Puzzle pieces represent site investigations, users' needs, and mapping of the secondary resources, forming all of the information for the development of the business models. One chosen business model translated to architectural intentions which are the background for the design project developed in an iterative working process. Illustration: Inge Vestergaard.

The last methodology integrated in this research is 'Research by Design'. It is the preferred design methodology by Danish architects when they want to give a holistic answer to a task, fulfilling the qualities of the Vitruvian Triad: 'durability, convenience, and beauty'.[22]

> Research by design is any kind of inquiry in which design is a substantial part of the research process.
>
> In research by design, the architectural design process forms a pathway through which new insights, knowledge, practices or products come into being.
>
> Research by design generates critical inquiry through design work that may include realized projects, proposals, possible realities or alternatives.
>
> Research by design produces forms of output and discourse proper to disciplinary practice, verbal and non-verbal, that make it discussable, accessible and useful to peers and others.
>
> Research by design is validated through peer review by panels of experts who collectively cover the range of disciplinary competencies addressed by the work.[23]

This definition has been elaborated on and developed in the teaching practice of the Approaching Sustainable Architecture Studio at Aarhus School of Architecture in order to investigate design methods for an artistic approach.[24]

CASE: EXPANDED INVESTIGATION

The following presentation will illustrate the case and show how the aforementioned methods were used for developing the project. The different phases referring to Figure 1 are written in a linear form, but it is stressed that also the process flow and the singular investigations and results are done in an iterative working process.

The site for the research case is a modernist housing area from the welfare states' birth in the late 1960s in a typical suburb of the southern periphery of Aarhus in Denmark. The housing scheme of the area is a compound of three-storey and four-storey residential blocks, a single-family housing area, and a park of offices and small industries.

There are some institutions that service the housing areas: a secondary school, a primary school, a kindergarten, and an after school club childcare. A small outdated single-storey shopping centre constitutes a resource for the project. The shopping centre is framing a quiet urban square and a parking lot, which is an appropriate place for new businesses. The buildings around the shopping centre have great potential for revitalization and remodelling. Over the last years, housing areas in Denmark have undergone important renovations. The aim has been to convert the monofunctional housing areas into diverse and multifunctional cityscapes. The goal of such transformations has been to upgrade the modernist suburban residential areas to lively and well-functioning urban areas.[25] The purpose of the case project is to transform and upgrade the existing environment by profiting from on-site resources.

Mapping human resources and user needs: The majority of the neighbourhood's residents are families of immigrants from the Middle East and

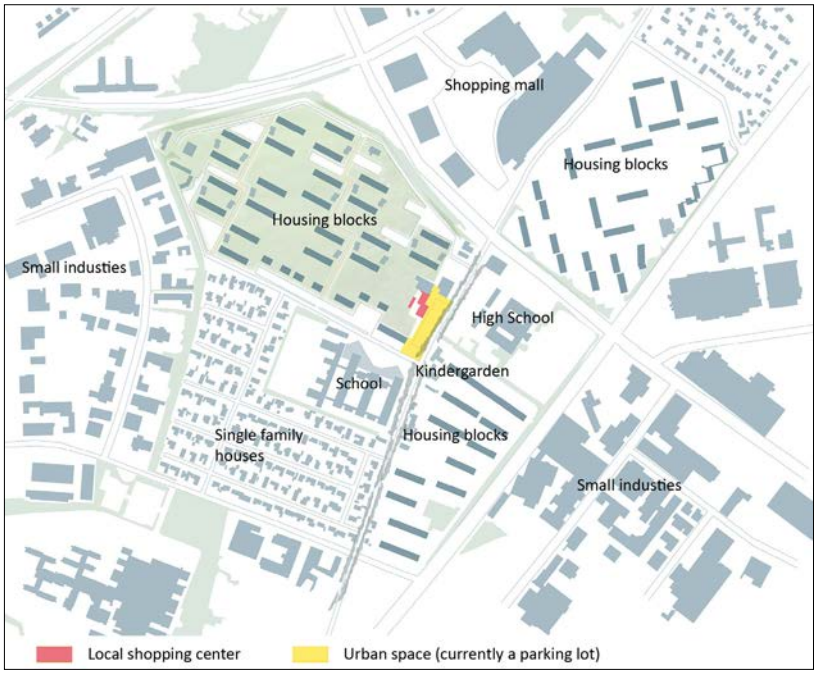

Figure 2. The layout of the modernist housing area is surrounded by the urban fabric of detached houses, shopping centres, and institutions. The local shopping centre and urban square are marked. Illustration: Guillermo Martín Jiménez.

East Africa, who have been arriving in Denmark since the 1970s. The unemployment rate is high among them. It is especially the women, who in most cases are mothers of several children, who find it most difficult to integrate. These women have found a hobby in sewing together with other women from the neighbourhood. In an adjacent building, the local social services have been running a small textile workshop for the residents for years. The workshop is an initiative aimed at teaching the participants skills in order to open a door to the labour market for them. The products are sewn mainly from old clothes and are charming samples of clothing redesign. The workshop sells their textile products in craft markets twice a year. The participation in the workshop and the sales in markets have a positive effect on the trainees, improving their self-confidence.

Mapping secondary resources: The precondition of the mapping respects the Superuse methodology's principle of seeking to keep the components as untouched as possible in order to preserve the components' values (Figure 3). There are several arguments for the convenience of minimizing fragmentation on reused components. To cut the material in smaller pieces compromises their functional qualities, their original shape, and structure. Additional consumption of energy and consequent CO2 emissions are needed to fragment the product. Such an added environmental footprint is also incongruent with the purpose of saving resources and can reach significant numbers. Furthermore, a whole element has more value when reused in future assemblies. Lastly, on an aesthetical level, there is an inherent beauty in the specificity of shape, structure, and colour of almost any component, which becomes visually powerful and surprising when designed to a new purpose. However, this power is somehow unrecognizable and lost when the element has been fragmented.

Figure 3. Examples of building waste found locally: window glass, construction timber, aluminium doors and windows, and chromed shelves. Photos: Vestergaard.

In this case, the secondary resources found were surplus materials which were being discarded by stakeholders as by-products of their systems.[26] A scan of the site surroundings identified several building materials of which the most relevant were cardboard profiles and tubes from a printing manufacture, chrome steel shelves from a large supermarket chain, and a regular flow of small aluminium composite panels. These materials have functional and aesthetic potential for being adapted to indoor spaces (Figure 4).

At the time when this case was elaborated, the twenty-seven residential blocks from the area were under transformation. The south facades, which were made of steel-cladded glazed balconies and sliding windows of aluminium, were being entirely demolished and renovated, while the north ones were being modified by external insulation and new windows.[27]

The secondary resources found in the neighbourhood were of multiple kinds and qualities. Within their diversity, they were classified into two main groups. One group comprised the harmless materials which were ready to be used without any previous processing, such as building components that could be retrieved from the building site as whole elements. That is, the aluminium window frames and the steel facade panels. In the existing procedure, these components are demolished and directly transported to a down-cycling factory. There, the glass and the aluminium are melted and part of it is recycled. Nevertheless, such a strategy, common practice in the building sector, is eminently wasteful in terms of energy, material, and value. Other harmless materials found were those that are used for protecting products. They are hardly recovered by the existing waste management system. Such was the case with the cardboard elements and the chromed steel shelves that were found. These materials are either sent for incineration, which fuels district heating, or they are disposed of in landfill. The other group of material resources compri-

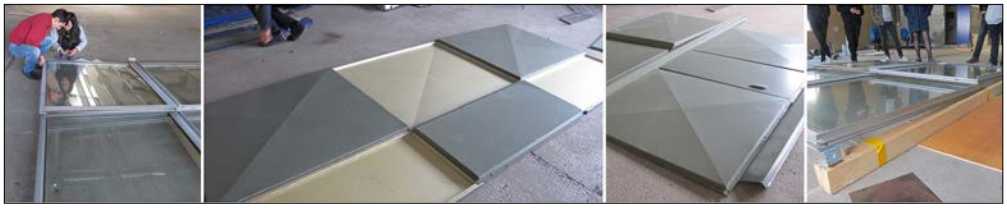

Figure 4. Exploring the aesthetic potentials of secondary resources. Photos: Vestergaard.

sed those containing hazardous chemicals, such as window panels sealed with the toxic compound polychlorinated biphenyl PCB.[28] The windows were being broken in containers for an easier transport to different channels of distribution. Normally they are transported to Germany for further treatment. As a matter of fact, the treatment of toxic waste represents an opportunity for economic growth rather than a problem. The salvage of these and other similar materials will demand further research on the elimination of toxic substances.

The business model integrates different aspects of importance related to the local society in order to create and deliver added value, to whom it does so, and how to do it. Likewise, the model shows the ecomonical income and output.

> Industrial ecology focuses mainly on manufacturing processes and also on product design. Companies are seen as agents for reducing environmental harm, as they possess the technological expertise to improve their processes and products.[29]

The business model is inspired by the idea of industrial ecology and, in this context, it is based on a textile workshop already existing in the neighbourhood. The business model's potentials are developed through a dialog between the local women, the local social workers, and architects with visions.

The women's wish to sew as a form of expression is complemented by the commercial aspects of selling their results. The business model would be a textile business that produces and sells clothing and home textiles out of recovered textiles, principally discarded clothing. The apparel would be sourced from clothing disposal flows of Aarhus. Each textile product would have a unique and artistic patchwork design. The managers could be Danish fashion designers with good communication and relationship skills. The manufacture of the products

Figure 5. The textile workshop pursuing to be a welcoming and creative work environment for resident women of migrant backgrounds. Illustration: Guillermo Martín Jiménez.

would give employment to neighbour women living at risk of exclusion. The designs would result from participative teamwork between the employees. The sales of the artwork and redesigned clothes will allow the women to become self-sufficient, thus making no longer necessary the social subsidies that they receive from the municipality. As a result of this, the women will gain more self-confidence and they will begin to recognize themselves as active members of the society. The municipality might support the initiative for a period of time, and later on gradually reduce the grant as the business gains momentum.[30] Adding to the circular quality of the business, many forces are working for circularity within the textile business in order to bring used textiles into the circular loops again. The French RETEX has recently released news that their aim is to integrate all textile waste in the ever-increasing textile waste stream.[31]

CASE: ARCHITECTURAL DESIGN

The architectural intentions for the case project are enumerated as follows, in order to understand the multiple demands to the design:

- Taking the context into consideration, and fulfilling the users' needs with the existing resources and means.
- The building should be located in the existing shopping centre and thereby strengthen the urban environment currently offered to the neighbourhood's urban life.
- The architectural intervention should support and nourish the already existing functionalities.
- The building design should perform the function of a textile circular company where the majority of employees are women from the neighbourhood.
- The building should perform the purpose of a public facility for the area. The functions could include spaces for activities such as offices for start-ups and support from the municipality for creating local jobs, informal social gatherings and events, a playroom for children of different ages, and a medical clinic. These functions satisfy some of the demands and suggestions expressed by neighbours and local social service workers.
- The project should optimize the reuse of local material resources, which means that the design should be substantially made of discarded materials found nearby.
- The harvested components should remain whole and their joints should be designed for disassembly.

  The intentions set the agenda for the architectural design.[32]

The local shopping centre acts as a central place for a relatively large housing area. This place is frequented by many locals throughout the day. The shopping centre is composed of a row of five shops with a wooden portico in front, a hall for bingo, and a hall for a supermarket. It is a valuable environment and the heart of urban life of the neighbourhood. Throughout the day, the centre and its parking lot are visited and passed by many locals of all ages.

Some of the existing buildings in the shopping centre form a courtyard. The courtyard qualifies to become a protective atrium for the women whose comfort is culturally dependent on privacy from the exterior. The existing courtyard, being the core space of the project, becomes the sewing hall for the textile company. The project adds one storey to the existing shopping centre, covering the courtyard, and adding towards the park a new wing designated for childcare. The result is a two-storey building, the activity of which will enhance the existing daily life of the site.

On the ground floor, the functionalities are strongly related to the existing environment, namely the sewing hall to the existing courtyard, the existing shops to the street space, and the childcare wing to the park gardens (Figure 6). The designed hall, which has a double height, is lit by skylights oriented to the north (Figure 7). On the first floor, the spaces are organized by a gallery that runs along the perimeter of the hall. Additionally, a new passage is opened through the whole building structure, offering to pedestrians a new possibility of movement and a new public yard.

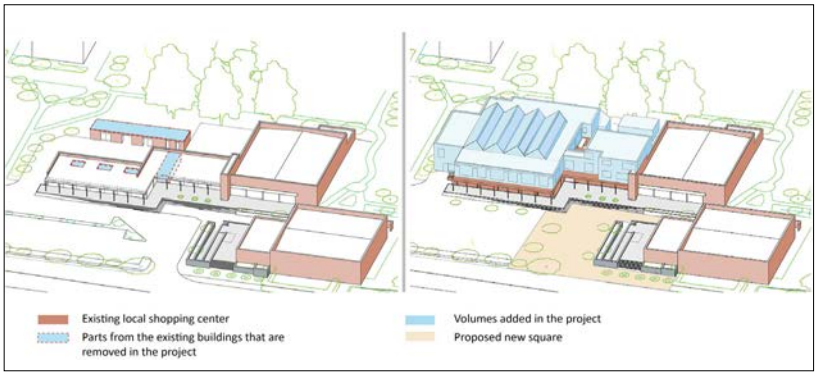

Figure 6. Isometric views before and after the transformation. Illustration: Guillermo Martín Jiménez.

The interior envelopes are made up of the materials salvaged in the locality. To the interior, the partition walls that face the main hall are built with the recovered windows and doors, the cardboard tubes are reused in form of lattices that complement the transparent inner walls, and the steel supermarket trays are redesigned to be the railings of the gallery surrounding the hall.

The exterior facades are also designed to be made up entirely of the components that once enclosed the blocks' south facades in the housing area. That is, reused aluminium sliding windows and doors and a steel rain screen composed of cladding panels, corrugated sheets, and U-shaped profiles. The potentials for reuse available from the south facades in total was 13,305 m^2 of glazing, 4,955 m^2 of cladding with steel panels, and 1,944 m^2 of corrugated cladding steel. The utilized material for the transformation case project was 675 m^2 of glazing, 622 m^2 of cladding with steel, and 278 m^2 of corrugated cladding sheet. The difference in each category was surplus material which could have been contained in a material bank. This is just an example of how much material is managed for demolition.

The placing of windows in the building envelope seeks to achieve open-ness and lightness with the intention of facilitating visual communication between interior and exterior space. The steel panels have two colours, and the facade design profits from this variation (Figure 9). The panels have holes along the

Figure 7. Ground floor and first floor plans of the project. The existing construction is shown in red colour and the new additions in grey colour. Illustration: Guillermo Martín Jiménez.

edges, which allow an easy assembly and disassembly. The skylights too are designed to be glazed with panels from the recovered window compounds. This solution has downsides since these windows are not meant to work on a skylight. To reduce heat transfer, it is proposed to add complementary glass layers immediately underneath. Lately, the Danish office Lendager Architects has effectuated a similar solution. The office managed to prove the current energy demands by reused windows.[33]

The material chosen for the structural elements, wall frames, decks, and roofs, of the extension is new timber. Regarding the structural design, it is adapted to the conditions given by the preserved building, so the structural

Figure 8. The south facades have large balconies. At the time of the investigation the facades were being demolished due to renovation works. The facades have clear potentials for reuse in new building layouts. Illustration: Guillermo Martín Jiménez.

Figure 9. Upper picture: the shopping centre as it looks before the transformation. Lower picture: transformation of the case project where the facade is created as an assemblage of the existing wooden portico in combination with the facade expression created with reused steel plates in a modular surface design articulated by the plate's two colours. Illustrations: Guillermo Martín Jiménez.

spans and bays can fulfil the functional demands of the new building while not interfering with the old one.

FINDINGS

In Denmark, the streams of waste follow certain management rules. Many materials are taken back to the producers through the building process. Regarding the remaining waste, a great deal is produced by demolition. Waste is separated in fractions and it is downcycled, thus becoming new raw material for the building industry. The investigation of the resource streams shows that it is possible to salvage resources without losing their value and therefore remain as resources directly available for new buildings. To look at the resource system with the vision of industrial ecology was a way to find new opportunities in the system. Through the analysis of the resource streams this research gave insight into how many resources are thrown away and how effectively waste is managed without nearly anybody realizing the amount of resources being downscaled. With this insight it is obvious that a great deal of this waste could be rescued from the existing waste streams and thereby salvaged for reuse for new purposes. It is obvious when studying the resource streams that a deeper analysis of the resources potentials is neces-

Figure 10. Two-storey high sewing workshop, lit by skylights. View to the north. Illustration: Guillermo Martín Jiménez.

sary, and consequently reorganized, if the existing habits have to be altered in order to establish more discriminating strategies of waste management.

A relatively high rate of waste is incinerated and utilized for district heating. This procedure is positive in terms of heat supply, but definitely negative in respect of the environmental footprint. However, the research has witnessed that few practicing architects can see resource potentials in large amounts of waste fractions, which so far are being downcycled. If the Danish waste management takes responsibility for selective collecting, great potentials for reuse will be at hand and a greater perspective in circular economy will become visible.

By perceiving waste as a tool for development, the studio acquired dawning comprehension of the potentials of resources that are usually neglected. This discovery was open and unbiased, and it brought to light new and unseen possibilities. In one week, the architectural students found plenty of affordable resources and harvested fifty-seven samples in a periphery of three kilometres from the project site.

The design project showed that even in a local housing area, where no one would expect to find cheap or even free materials, many could be found at renovation sites. There are potentials for architects and other facilitators to develop businesses with the purpose to salvage waste for new use. The effective public waste system is to collect and empty the waste containers every second week. This procedure has to be rethought since it is obvious that new possibilities for business will unfold when the owners of the industrial productions begin to see waste as resource, such as material, water, and energy for sale or exchange with other products.

The transformation project was situated in an area with social problems and unemployment. The business model in the design project followed a bottom-up policy. The local inhabitants and their needs of a sewing workshop with an additional showroom and shop were seriously taken into account. In the future, such a process can be beneficial for new business models which must meet the actual challenges of how to integrate segregated neighbourhoods. That is, to engage the local citizens from the first stages in the purposes of the design, so they see themselves involved in the development of new ideas to improve their locality. This will allow them to feel like being a part of the transformation of their quarter. It seems

obvious that the application of such strategies will increase integration and satisfaction among the residents.

From the design project it has also been learned that reusing an abandoned building is worthwhile. Firstly, the building does not have to be demolished, thereby resources are saved. Secondly, the building and its context carry a story about the area's history, telling the story of how this area was born as a part of the Danish welfare society where housing areas were created with small local shopping centres. Thirdly, the local inhabitants are still using some few functions taking place in the buildings. Fourthly, used materials from the existing housing area can find new and beautiful narratives when assembled in new ways. The reused materials can, in a new design context, form new expressions when used in unforeseen relations and even get a new detailing through another way of assembling, for example in the facade design.

DISCUSSION

Going through a project from identifying resources, realizing the local citizens' demands and wishes to creating a business model, defining the architectural intentions, and giving form and materializing the design was a long journey. This journey was filled with unexpected learning and surprises, starting from acknowledging how short-term it is to think that waste has to be downcycled to the acknowledgement of waste as a ready resource. This led to the following discussions and perspectives:

There are many ways of downcycling a building. Being aware of the values and embedded energy of buildings is conclusive against the current demolition practices which need to be changed in favour of selective demolishment and disassembly, and thereby rescuing unique materials and whole components. The research suggests that there are latent possibilities of rescuing value in every phase of the demolition.

In respect of dismantlement, two issues of relevance were found: one was toxins and the other was the presence of dangerous substances spread in large amounts of material from the 1970s. Add to this that there is a general lack of environmental responsibility in the processes of demolition. In the wake of time efficiency, demolitions ruin most of the worthy material in the process. It seems evident that the materials are not perceived as secondary resources, which may explain, apart from economic reasons, why primary resources are often if not always preferred. A close examination of the demolition phase in

the building industry reveals that secondary resources could intensify new potentials for circularity.

Each phase of the research yielded insights for further development and a new attitude towards urban areas, buildings, and materials. Starting from a focus on materials was an interesting challenge. Looking at existing buildings as resources defied normal attitudes and served as a prevention from choosing the erase option. Buildings, at least those of good quality, can last for a very long time if they are maintained regularly. Even if the building's functionality disappears, buildings can be reorganized and revitalized with new purposes.

Already existing buildings can be transformed into new designs, carrying values in the future. Nowadays there are many very authentic buildings that are neglected and in risk of being demolished. Even well-preserved valuable buildings are often demolished for being an obstacle to bigger building plans. To change this habit will thereby create a greater respect for the building culture and history of the city in which the building belongs. In the case explored in this research, none of the existing buildings are to be demolished, and only additional structural elements are added to raise the new building. The shops and the wooden portico towards the street are entirely preserved, showing that the project respects the existing built environment and stresses its values.

The actual transformation provides an extra benefit to the design. The architectural language speaks with local terms. Firstly, the original shape of the square is preserved and reinforced. Secondly, the existing structures have been given new life and meaning. Thirdly, the design opens a new passage connecting the local square with the park of the residential area, which also gives access to the sewing hall and the childcare wing. Finally, all through the design the materials from the former housing facades can be discovered. Their assembly and montage form a collage which narrates the story about the changing appearance of the quarter over the building's lifetime. In relation to the expression of the architectural intervention, it may illustrate another way of anticipating new attitudes in architecture. Memories of earlier appearances and materials will form the articulated narrative of a specific place. This might be seen as something unexpected, but over time such an attitude will be common and tell a new story of responsibility.

Starting off an investigation of the resource systems, a parallel was drawn between this research and the waste distribution system of a Danish project

from the 1990s, namely the Industrial Symbiosis in Kalundborg.[34] An industrial symbiosis is an association between two or more industrial facilities or companies in which the wastes or by-products of one become the raw materials for another.[35] In Kalundborg, the resources are utilized in the form of energy, water, and others, which are exchanged between seven factories. Every factory involved takes the other's waste as a resource for their production. This concrete example serves as an inspiration to similar resource systems in circular economy. Furthermore, the implementation of symbiotic strategies should be enlarged to include whole districts, or perhaps even municipalities, or regions. The predominant opinion on industrial symbiosis among professionals is that it would be too difficult and it would require too much work to discover the potentials of resources on a large scale. In any case, it is recommendable to give more visibility to resource flows. Information on the quality and the quantity of the resources must be available to the public and the consulting professionals through a digital marketplace.

Another shift in perspective would be to look and evaluate existing buildings as materials banks.[36] Today, many buildings from the 1960s are being demolished and vast amounts of valuable materials are being downcycled into gravel for motorway sinks. Such downscaling should be balanced, and valuable elements should be withdrawn from the waste streams in order to function as reused components for new architecture. At the moment we do not have a system that takes care of these materials and components, preventing them from being lost.

There are barriers to an innovative and circular development of the demolition processes. The agenda, with an economy based on time optimization, does not yet realize the advantages of changing to a circular process. As a result of this misunderstanding, the selection of the materials which are rescued undamaged from the demolition work is random, and only very valuable materials are recovered and stored.

Significant amounts of materials could be saved for rebuilding if the system was reoriented towards careful dismantlement, shortage, and storage. In conclusion, the existing structures must be adapted in order to conduct more resources in circular loops. Control and certification of already used materials should be CE-certified. In Denmark, there is already one enterprise of reused material, which is CE-certified.[37] The CE certifies that these reused bricks are apt to be used in all kinds of enclosures and that it is up to

the client and his advisors to choose the affordable quality and atmosphere for his specific building. However, a gaze to the market shows that reused materials are still expensive in comparison to new ones, which also tells a story that society needs to understand if increased use of already used resources is to become common.

In the future, it is likely that architects will have new capabilities to challenge the appearance of architecture. According to research done by Iida Kalakoski and Satu Huuhka, the principles of reuse of spolia can be articulated in contemporary architecture. Normally it is expected that spolia as historic items can be implemented in design, such as wood carvings or old window frames, in order to manifest an atmosphere.[38] However, in contemporary times architecture has the opportunity to assemble different resources and implement spolia from the welfare society in a holistic collage. Diverse elements such as concrete panels, steel structures, and cladding of different types will enrich the coming archi-

Figure 11. Close-up photomontage of the facade turning the urban square. Illustration: Guillermo Martín Jiménez.

tectural assemblage. By implementing these items the designs will be fed with responsible resources. Moreover, architects will discover new potentials for their design. Architecture will tell stories concerning the affluence of society.

In line with a crescent reuse of resources, more sensible architecture users will appreciate the narrative atmosphere, and our physical environment will have the opportunity to gain an interesting appeal.

CONCLUSION

The intention of this research was to show how the transformation of an existing building structure using local resources can surpass the 'use and throw away' practice in architecture.

Through the research, the local streams of waste materials were identified. The possibilities for reuse were explored in parallel to the possibilities for upgrading the architectural quality. The system of local waste management was studied with the aim of saving more resources for possible use in architecture. Discourses on shaping the architecture opened the perspective on circular flows and unnoticed potential resources were discovered, such as the buildings existing at the site or the significant amounts of resources that were found nearby.

The goals of the research were reached and managed to explore several gaps. A future circular attitude within the management and the prevalent mindset regarding management of materials are recommended. We have looked at the built environment as a resource. The case proposed a circular building that articulates a more evocative architecture where reuse narrates new cultural values.

Architecture is not the problem. The problem is the difficulty in getting access to materials which can be used again, and in covering the expenses of overviewing, reorganizing and cleaning the secondary resources. The challenge of today is to inspire a further understanding of the potentials of using secondary resources in architecture, and thereby to narrate stories of a society of abundance where materials are being thrown away in the belief that the globe can replace them without bearing the consequences.

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CAMPUS IN TRANSITION: SUBURBAN TRANSFORMATION AND RESILIENT URBANITY

Anna Kholina

ABSTRACT

This article looks at Finnish suburbs as a resource for urban growth. It explores the process of suburban transformation following the case of Otaniemi, an area which is actively changing following the regional development and the needs of the growing university campus.

The main focus of the study is the extent to which the suburbs, designed between 1960 and 1980 in accordance with modernist planning principles, can be transformed into livable and attractive urban spaces. Informed by two theoretical perspectives—social production and construction of space—this study outlines the factors which both enable and constrain suburban transformation using the data collected from 2015 to 2018. Study findings demonstrate that successful suburban transformation results from a combination of material and social factors.

The article suggests that social diversity is as important for a post-suburb as density, land use mix, and street connectivity, and that it calls for more attention towards non-material factors in urban design and planning.

KEYWORDS

Suburban transformation, modernism, Finland, social diversity

INTRODUCTION

Suburbs and urban sprawl have been subject to heavy critique due to their negative impact on environmental sustainability[1] and also to the high operating costs of services and infrastructures. Being a product of their time with post-war population growth, automobile-led development, and belief in a nuclear family, they seem obsolete for contemporary cities. However, suburbs can become a valuable resource for creating more decentralized and balanced urban areas. The notion of post-suburbia[2] suggests a new metropolitan reality which includes a more urbanized periphery.[3] In theory, post-suburbs are redeveloped to be more like a city, that is, denser and with a more complex land use and economic structure. In reality, the process of suburban transformation is slow due to the many constraints that prevent the suburbs from changing.

In Finland, urban sprawl originates from the planning paradigms introduced by the architects and planners Eliel Saarinen and Otto-Iivari Meurman in the 1950s. They advocated the concept of decentralization which supported urban growth through satellite cities, preventing the centre from becoming too populated.[4] As a result, the Helsinki capital region (the City of Helsinki and the satellite cities of Espoo, Vantaa, and Kauniainen) has a relatively evenly distributed population with an average density of 1,865 people per square kilometre,[5] which is less than half of the population density found in Amsterdam or Copenhagen. Today the satellite cities and the more classic suburbs built in the 1980s are problematic for the region as they account for high energy and transportation costs[6] and attract little new development in comparison to the city centre.

To change the situation in the capital region, the Helsinki and Espoo metropolitan areas have recently completed a milestone project of connecting several suburban areas to the city centre with an extended West metro line. The plan was to attract developers and increase the density of the suburbs, resulting in a higher quality of urban life. While better transport connections are indeed an important step forward, a successful suburban transformation implies more than that. In fact, more complex land use and economic structure,[7] walkability and compact form,[8] and street network connectivity and accessibility[9] are among the qualities that often appear in literature as the preconditions for livable urban spaces. Many require major changes in the street network, zoning regulations, and land use principles, which are challenging to implement in Finnish suburbs shaped by the functionalist planning paradigm.

The question posed by this article is if and how the suburbs, designed between 1960 and 1980 in accordance with the modernist planning principles of rationality and segregation,[10] can transform into livable and attractive urban spaces. The study follows the process of the suburban transformation of Otaniemi (Figure 1), an area in the City of Espoo which is home to Aalto University's main campus along with residential housing. The case of Otaniemi was chosen for three reasons:

1. It was originally envisioned and designed in line with modernist planning principles, segregating people and uses, separating pedestrian and car traffic, and leaving large open spaces between the buildings.
2. In recent years, the transformation of Otatiemi received a boost from the construction of the West metro line and the decision of Aalto University to consolidate its three campuses in the area.
3. Otaniemi is currently undergoing a sociospatial transformation following the needs of the university and the plans of the Helsinki capital region. New buildings and services emerge in the area, driving the process of urbanization.

At the same time, there are constraints preventing Otaniemi from changing into a dense urban cluster. Its plan and several buildings were designed by the famous Finnish architect Alvar Aalto and the area is subject to heritage preservation, making significant changes difficult. Additionally, the area has a nature reserve with birds and other protected species which could be threatened by intense urbanization and redevelopment.

Data collection for the article was done from 2015 to 2018. The first data set included official planning documents, historical records, maps, visualizations, and presentations about Otaniemi made by the representatives of the City of Espoo and development companies. It informed the study about the planning vision and policies, as well as about the values of different stakeholders. The second data set was collected through a range of ethnographic methods such as interviews, participant observations, activity monitoring, and engaged participation. This data shed light on the sociomaterial everyday practices which transform the space on the individual level.

Theoretically, the process of suburban transformation is analysed here from two perspectives. Social production of space highlights the economic, historical, and ideological forces that shape the material space, while social

construction of space emphasizes the changes which happen through everyday practices and human interaction. The combination of these perspectives allows the tracing of both the top-down strategies and the bottom-up tactics which contribute to suburban transformation.

Findings of the study demonstrate that successful suburban transformation results from a combination of material and social factors. The article suggests that social diversity is as important for a post-suburb as density, land use mix, and street connectivity, and that it calls for more attention towards non-material factors in urban design and planning.

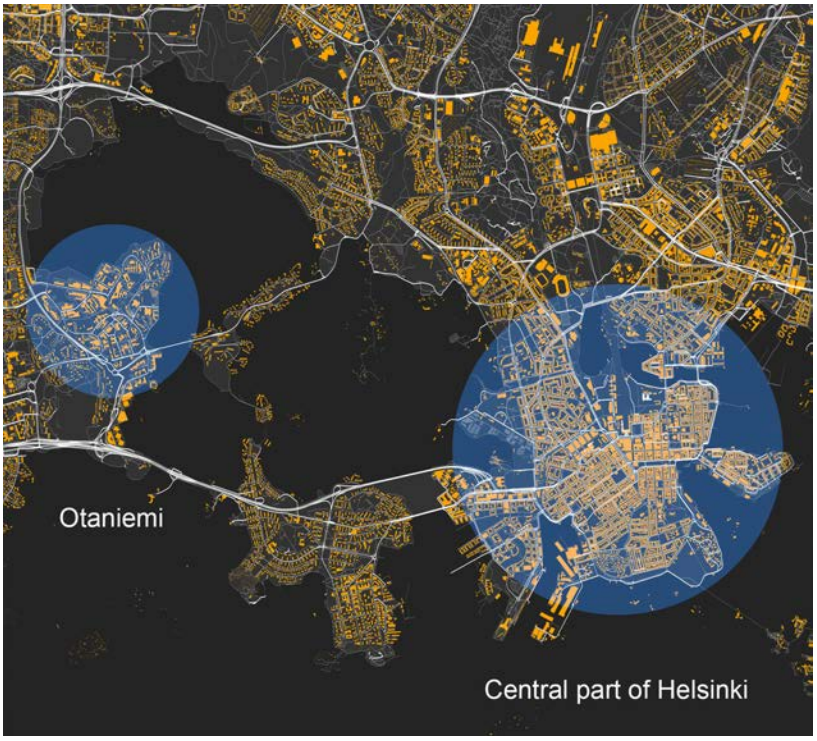

Figure 1. Otaniemi in relation to the central part of Helsinki. The map contains building footprints and road networks. Image created by the author with data from OpenStreetMap and by means of the OSMnx package developed by Geoff Boeing.

BACKGROUND

Originally, the rural area of Otaniemi (Figure 1) started to develop in 1948 after a decision made by the Helsinki University of Technology (TKK; Finnish: Teknillinen korkeakoulu) to move its premises from downtown Helsinki to a new location outside of the city. Two reasons contributed to this process: first, the economic growth and the post-war progress, which demanded more engineers and, consequentially, more and bigger laboratory spaces;[11] and second, the price of the land in Otaniemi (located in Espoo, the neighbouring municipality of Helsinki), which the university could afford to buy in order to expand its campus. The first buildings completed in Otaniemi after TKK's decision were the sports facilities and the student halls of residence in the Teekkari Village that were used to accommodate the athletes during the 1952 Olympic Games. Back then, the role of students and student culture was already visible in the way the new campus space was shaped:

> The construction of these buildings represents the world's largest stunt ever performed by students: engineering students helped on site to clear and move, in a voluntary work project, a total of 800,000 bricks from the Soviet Embassy, which had been bombed and destroyed during the Continuation War.[12]

The general plan of the area was designed by the Finnish architect Alvar Aalto. He won the town planning competition for the Otaniemi area in 1949.[13] By that time, Aalto had already distanced himself from the formalist ideas of CIAM purists and was concentrating instead on regional characteristics introducing a new Finish combination of town and country life.[14] His project was based on the Anglo-American campus model, but he also took into account the original agricultural landscape of Otaniemi.[15] The campus was designed around the topography of the area with the main building standing on a hill and others dispersed in the forested landscape: 'The buildings were placed either along the edges of open fields or in the middle of wooded hills.'[16]

Architects other than Alvar Aalto were responsible for shaping the physical space of the area: the oldest dormitories, the Servin Mökki restaurant, and the Otaniemi chapel were designed by Heikki and Kaija Siren. The Dipoli building, the headquarters of the student union, was designed by Reima Pietilä and Raili Paatelainen.[17] In the following decades, the campus continued to grow as new buildings were added, but its visual feeling did not change much (Figure 2), for the architects were echoing the designs made by Alvar

Aalto. The growth turned into stagnation during the recession of the early 1990s, when some of the university facilities were rented out as event venues because it was too expensive for TKK to maintain them.

Major changes to the area started happening in 2010, when TKK merged with two other universities (Helsinki School of Economics and University of Art and Design Helsinki) and became known as Aalto University. In 2011, the board of the Aalto University Foundation decided to concentrate the activities of the joint university in Otaniemi.[18] The motivation behind this decision was to support interdisciplinary collaboration,[19] and also to minimize future expenses by letting go of the property that the university was renting in other parts of Helsinki in favour of its own land in Otaniemi.

Moving three different universities together brought another set of concerns. The newly established Aalto University envisioned interdisciplinary collaboration between different fields as its core strategy, but the existing 'mono-functional green-field campus'[20] did not fully support this idea, so a new vision for the area had to be created. This vision became known as 'Aalto City', a concept which implies 'a versatile and interactive environment for research, arts, and free-time services'.[21] The concept included densifying the core of the campus area within a radius of 500 metres with new buildings and services.

Parallel to this, the City of Espoo launched a new urban development strategy known as 'T3' in 2011. Its objective was to develop Otaniemi and the neighbouring area of Keilaniemi as the largest high technology hub in Northern Europe.[22] Implementing this vision would not be possible, however, without better transport connections to Helsinki and other parts of the metropolitan region. In 2017, a metro line connected Otaniemi directly to central Helsinki, and in the early 2020s a new light rail called Raide Jokeri will connect Otaniemi to the north and the east of Helsinki.[23] With the faster and better connection to other urban areas, Otaniemi should have seen a construction boost and attract new development. However, this process was constrained by two factors: in 2016, the Finnish Heritage Agency declared the core area of the campus a protected cultural environment.[24] Although the university convinced the City of Espoo to alter the original plan by Aalto and allow the construction of a new building next to the metro, the protection of Aalto architecture strongly limits the development of the campus.[25] Second, Otaniemi is located next to a natural preservation area in Laajalahti Bay of the Baltic Sea, one of the key bird reservoirs in the metropolitan region. The

192-hectare Natura area features some of South Finland's bird wetlands, and the presence of the rare species extends to Otaniemi, limiting the amount of construction possible in and around the forests.

Most importantly, Otaniemi faces challenges with transformation due to the modernist nature of its design. Separated pedestrian and car roads, housing isolated from study and shopping areas, an abundance of open green spaces, and a sprawled character which complicates walkability are some of the characteristics typical of suburban university campuses.[26]

THEORY AND METHODS

To understand the process of suburban transformation, the study integrated two theoretical perspectives: social production of space and social construction of space. This approach was developed by Setha Low, who synthesized the works of Henri Lefebvre[27] and the writings of Peter L. Berger and Thomas Luckmann[28] in a framework that allowed her to analyse how culture is spatialized.[29]

Figure 2. Changes in Otaniemi between 1968 (upper left), 1975 (lower left), and 2017 (upper and lower right). Source: Aalto Visual Heritage blog (https://blogs.aalto.fi/visualheritage/). Archive images identified by Aalto University are free of known copyright restrictions. Images from 2017 are works by Tove Ørsted and Marika Sarvilahti and are attributed under CC BY 4.0 license.

According to Low, social production looks at the historical, economic, ideological, political, and technological factors which produce the material setting. Social construction, on the other hand, is connected to how people transform their everyday environments, 'through peoples' social exchanges, memories, images, and daily use of the material setting'.[30] Combined, social production and social construction reflect the dichotomy of space and place, the material and the social, and highlight the importance of both the top-down planning strategies and the bottom-up tactics of urban transformation.

These two perspectives informed the methods of the study. Social production was studied by analysing official planning and strategy documents, existing surveys, historical records, maps, visualizations, and the contents of public presentations about Otaniemi made by the representatives of the City of Espoo, Aalto University, or development companies. These materials were collected in 2015–18 from publicly available sources or recorded by the author during public events, workshops, and talks. Insights into social construction, on the other hand, were generated through fieldwork on site. Between 2015 and 2018, I made regular weekly visits to Otaniemi, participated in courses, conducted interviews with people who work, live, and study on campus (N=20), and documented my observations by means of field notes, photographs, and audio and video recordings. I also used the public life study methods pioneered by Jan Gehl[31] to analyse people's behaviour in public spaces, focusing on optional and social activities. This included counting people who were staying in public spaces in Otaniemi and registering the sites where it happened.

When analysing how suburban transformation happens in Otaniemi, the study looked at several criteria related to a well-developed urban realm. These criteria can also be divided into two groups, following the distinction between the social production and social construction of space. The first group consists of criteria related to the material setting. It includes qualities such as a mix of different uses, street connectivity, horizontal and vertical grain, walkability and accessibility. The second group refers to the social qualities of urban spaces. According to Emily Talen,[32] social diversity (in terms of income, age, family structure, and ethnicity) is a key characteristic of a successful urban community. This view is supported by Richard Sennett,[33] who argues that cities are places which encourage the concentration of differences.[34] The mixture of races, social classes, ethnicities, lifestyles, and cultures is what

produces informal learning and results through an exchange of ideas. It is 'a productive ground from which identity emerges'.[35] The connections between methods, theoretical perspectives, and criteria of suburban transformation are summarized in Figure 3.

FINDINGS

The findings of the study are grouped in accordance with the two theoretical perspectives: social production and social construction of space. To summarize the research results, each group lists the factors that drive suburban transformation and the factors that constrain it.

Social Production of Space: How Do Economic, Historical, Technological, and Ideological Factors Influence Suburban Transformation?

What Enables Suburban Transformation

At a regional scale, the suburban transformation of Otaniemi is supported by new and enhanced transport connections. The metro and the soon to be accomplished light rail connect the area to downtown Helsinki and the northern parts of the capital region, thus reducing car dependency and commuting time. At the neighbourhood scale, Aalto University is densifying the core of the campus around the metro. The new building (Väre) is directly connected to the metro and includes a shopping mall in addition to the university spaces, bringing a mix of commercial, educational, and recreational uses to Otaniemi.

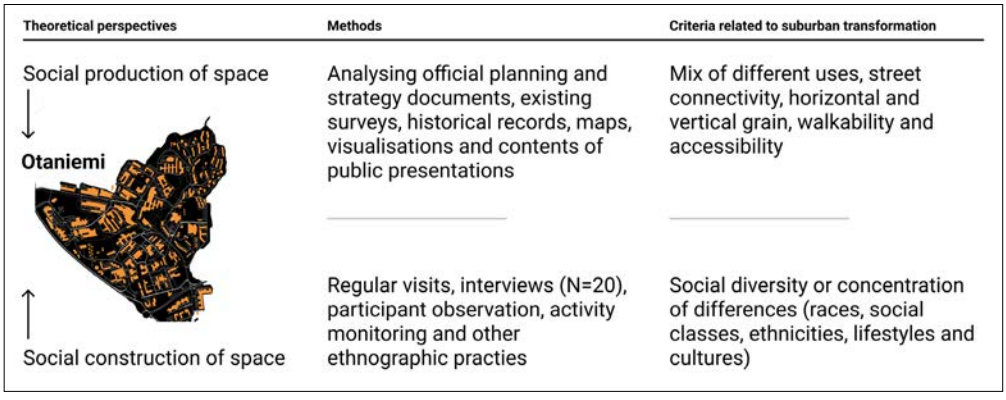

Figure 3. Research design: theoretical perspectives, methods, and criteria of suburban transformation. Image created by the author with data from OpenStreetMap and by means of the OSMnx package developed by Geoff Boeing

A decision to consolidate all of the schools of Aalto University in Otaniemi also had a major positive influence on its development as it brings more students to the area on a daily basis. Before the consolidation of the schools, the number of people was not enough to use the vast open spaces and squares, creating a feeling of emptiness. With more students coming to the area, existing public spaces have a chance to fulfil their social function of gathering and mixing people.

Aalto University clearly recognizes the problems associated with the way the area was designed. A quote attributed to the president of the university, which dates back to 2011, highlights the features of the space which emerged from modernist planning principles:

> The Campus Vision presented by the President of the University in June 2011 . . . criticizes the present state of the campus, marked with isolation, poor services, and areas heavily zoned for specific use and the infrastructure dominated by cars.[36]

The same viewpoint is shared by the higher management of the university:

> The opposite of this [socioeconomic] diversity is actually how the core of Otaniemi campus—designed by Alvar Aalto—is based on low degree mixing of users and user groups, and one could argue that there is a strong sense of formalism instead: the original plan from 1949 is based on concentrating buildings and roads on forested hills and ridges, while light traffic takes place on the lawns of lower fields. In the area produced by this original campus plan, the distances between different uses and user groups are huge, supporting private car traffic.[37]

Recognizing the pitfalls of modernist planning principles supports the university management in creating a new concept for campus development oriented towards urban values of mixed use, increased density, and transit-oriented mobility. The description of the future campus mentions the word 'lively' several times to emphasize the upcoming change in the monotonous suburban atmosphere of the area. This vision targets not only the new prospective students for whom Aalto University competes with other universities. A transformation towards the urban realm is meant to bring Aalto University more 'lucky encounters', a term used by one of the deans to describe interdisciplinary projects which emerge when people from different fields

meet. These projects can significantly leverage the profile of the university, attract additional sources of funding, and fuel innovation. Suburban transformation from this perspective goes hand in hand with economic concerns.

What Constrains Suburban Transformation

There are two main factors which constrain the suburban transformation of Otaniemi from the social production perspective. The first relates to the morphology of the space, which the current development plans do not change. The second emerges from a discrepancy in the vision of the future of Otaniemi held by different stakeholders.

Even though the current plan highlights densification and new construction, such new development does not change the morphology of the space which has been shaped by the functionalist principles of the modernist approach to urban planning. The difference between Otaniemi and a morphology which supports walkable, compact, and mixed neighbourhoods can be illustrated by comparing it to another, older neighbourhood. Figure 4 demonstrates the differences between the road network and the building footprints in Otaniemi and Kruununhaka, an area in Helsinki which developed prior to the twenteith century.

While both areas are relatively similar in size, their morphological features reveal very different patterns. In Kruununhaka, an orthogonal grid of streets forms small blocks of different sizes. Building footprints mimic the street network and create a continuous 'street wall'.[38] In Otaniemi, the situation is entirely different. The street network follows the topography of the landscape and the logic of car movement. Since the pedestrian and the car traffic are separated, the street network is much less developed. The buildings do not form a continuous wall, but are positioned as separate blocks with their own setbacks.

This kind of morphology falls at odds with the principles of a socially resilient urban form, walkability or accessibility. Jane Jacobs's formula for urban diversity[39] stresses the importance of short blocks, mixed primary uses, old buildings, and concentration. Jan Gehl highlights the importance of active edges to make public life happen,[40] echoing Richard Sennett's ideas about borders versus boundaries.[41] Small grain and horizontal grain are mentioned in John Montgomery's principles of a good city.[42] Larger buildings set apart from each other can produce desired densities, but this does not necessarily create the same feeling as an area with a more compact structure:

> A tall enough building with enough people living (or even working) in it, sited on a large parcel, can easily produce the densities we have talked about and can have internally mixed uses, like most 'mixed use' projects. But that building and its neighbours will be unrelated objects sitting in space if they are far enough apart, and the mixed uses might be only privately available.[43]

Another factor constraining the urban transformation of Otaniemi lies in the differences between the visions of its future held by the different stakeholders. The key players in the campus development, apart from Aalto University,

Figure 4. Morphological structure of Otaniemi (right) in comparison to Kruununhaka in central Helsinki (left). Top images display the car street network, while the bottom images display building footprints. Images created by the author with data from OpenStreetMap and by means of the OSMnx package developed by Geoff Boeing.

include the Aalto University Student Union, the Senate Properties, and the City of Espoo.[44] Each has its own agenda which envision a different future. Additionally, the Finnish Heritage Agency has a strong opinion about the changes that happen in a historically protected area. In the spring of 2017, an article in the leading Finnish news outlet *Helsingin Sanomat* featured an opinion written by the Alvar Aalto Foundation's director, who was concerned about Otaniemi losing its historical value because of the growing ambitions of Aalto University to make it denser:

> Alvar Aalto wanted to preserve the green areas and the hills. Now everything is filled. This should not be the case. In the worst case, even environmental crimes are legitimized.[45]

These different perspectives reveal a conflict of values behind the development of Otaniemi. While Aalto University wants to create a dense urban cluster, the narrative of the City of Espoo is based on innovation, competitiveness, and technology rather than on active urban life. Students want more housing, while local residents adopt a NIMBY strategy to stop new development in front of their property.[46] At the same time, public opinion falls victim to experts arguing for a need to preserve the landscape designed by Alvar Aalto, further blurring the narrative of a dense urban cluster. The importance of a shared narrative has been highlighted in urban planning discourses,[47] and two recent cases of urban transformation (Tammela neighbourhood in the City of Tampere and Tapiola just next to Otaniemi) demonstrate that the narrative as an instrument of power is extensively used in the Finnish context by decision-makers.[48]

Social Construction of Space: How Do People and Their Everyday Practices Influence Suburban Transformation?

What Enables Suburban Transformation

Some spaces in Otaniemi display social diversity which emerges in an organic, bottom-up way. During the fieldwork, my data collection protocol included recording the so-called optional and social activities.[49] They are the opposite of the necessary activities, such as going to work or to a shop, because they don't have a clear goal: people stay in public spaces only if they want to. Optional and social activities bring more people for longer periods into the public spaces, creating a natural concentration of different groups and a more urban-like feeling.

The site where I noticed the biggest concentration of optional and social activities was an old shopping mall designed by Alvar Aalto in the vicinity of a more iconic and well-known building. In most of my observations, I could notice at least one person casually hanging around outside of the shopping mall with a cup of coffee or a meal from a burger kiosk nearby (Figure 5). The shopping mall attracted different groups of people: students, construction workers, and local residents. It was one of the few venues where people felt comfortable staying in the public space by themselves. In other locations, I sometimes noticed groups of people spending time outdoors, but rarely individuals. I found these observations significant for the study because they directly pointed towards Talen's and Sennett's definitions of a well-developed urban realm (a mix of different classes).

Figure 5. Activities observed around the old shopping mall (top) and the nearby X-burger place (bottom). Photos by the author.

The old shopping mall had several features that attracted people and invited them to stay:

- **Services that target different groups of people.** An art supply store and a coffee shop were situated next to the burger truck. A workshop with sewing and embroidery machines was next to a grocery store. This mix of functions attracted a mix of people that otherwise would not meet.
- **An interface.** Most of the wall surface of the shopping mall is covered by transparent windows which allow eye contact and communicate what's inside. When passers-by saw people inside the shops or cafes, they were more likely to go inside as well. An active interface is a reflection of the border, membrane-like condition highlighted by Sennett.[50]
- **Closeness to human flows.** The shopping mall has no setback and forms a street-like pattern, turning the space under its roof into a sidewalk. As the place receives a flow of people due to a variety of functions, people stay there because they can observe other people, a quality which is known to support public life.
- **Material elements.** The space outside the shopping mall has temporary seating, outdoor furniture, bike racks, and protection from the weather conditions, fitting most of Gehl's criteria for good public spaces. Moreover, the protected space had a strong edge effect,[51] allowing people to stay along the border between two distinct areas.
- **Aesthetic character.** Unlike the other buildings designed in Otaniemi by Alvar Aalto, which require distance to appreciate their composition and harmony with the surrounding landscape, the shopping mall feels more intimate. It is famous for its wavy copper roof, but its aesthetics is everyday rather than monumental.

This shopping mall faces the challenge of maintaining the same level of social diversity in the future: once the metro started operating in 2017, most of the stores moved to the new shopping centre built in connection with the metro station. The old shopping mall will undergo renovation work, but attracting the same diversity of people once it reopens might be a challenge.

What Constrains Suburban Transformation

Student unions and guilds own an extensive infrastructure of amenities and have a potential to make the campus more interesting and vibrant. However, their exclusive, members-only attitude and the lack of ongoing operations

significantly reduce their possible positive impact on suburban transformation. The exclusive approach that the student unions practise is adjusted by their history, culture, and traditions, but at the same time it contradicts the ideals of a city, where the spontaneous, unplanned, and inclusive activities dominate over the privatized and exclusive ones.

Typical for Finnish universities, student unions are strong and independent bodies with an independent financial status and an ability to impact the development of the campus space:

> In Finland student unions have had a well-established legal and economical position since the 19th century. . . . All undergraduate students are automatically union members and obliged to pay an annual membership fee, which guarantees regular incomes for the unions. The oldest organizations, such as TKY, have gathered substantial fortunes over the decades.[52]

The purpose of the student unions historically has been to advocate the interests of the students and to nurture student communities. The student body, AYY (Aalto-yliopiston ylioppilaskunta), is the main protagonist and boasted more than 15,000 members in 2018. It includes the former student union of the Helsinki University of Technology (TKY), the student unions of the Helsinki School of Economics (KY) and of the University of Art and Design Helsinki called (TOKYO).[53] Despite the university merger in 2009, both the KY and TOKYO remain rather independent in terms of their operations and contact with the respective student communities. TF, the union of Swedish-speaking students, also maintains its independent status. It is physically manifested in the property that the unions own: TF manages a student restaurant building, Täffä, while KY owns two buildings in Otaniemi: Espilä and Saha.[54] AYY manages a number of saunas, sitsi locations (organized seated dinners), and meeting facilities, including a cinema. In addition, the guilds (student associations related to a specific department or programme) have their own guild rooms, and smaller student clubs operate in clubrooms, which are mainly located in the student village.

During my fieldwork, I made several attempts to investigate how to access the infrastructure controlled by the student unions and guilds. It was not an easy task since my status of a doctoral student in the School of Arts, Design, and Architecture did not automatically make me a member of any student association. I first interviewed students (N=7) who were either living in Otaniemi or were part of a student association, and after getting

the background information, I went on several visits to five event facilities and clubrooms. My main finding was that it was difficult to call these spaces completely public. Although there were no formal restrictions stipulating that only people belonging to Aalto University could use them, there were other kinds of constraints. First, some of the spaces operate on a pre-booking basis, meaning that all activity must be arranged and agreed on in advance. Secondly, their discoverability is complicated: some of them occupy spaces inside the student housing and are not visible from the street level. Also, discovering what is happening in a particular space is not easy since communication is primarily maintained among the members of the association to which the space belongs. When I discovered one of the clubrooms by chance, the members-only attitude was evident as people inside the room were waiting for me to leave before continuing their routines.

Among the students themselves, there are attempts to make the infrastructure of the associations more public and open: in 2017, a group of students started a project called 'Otaniemi sauna life', allowing people to join sauna sessions without pre-booking. Another project I have been observing closely, 'Otaniemi Free Space', has set a goal to break the boundaries of the student associations and operate on the same basis as a cafe or a co-working space. Despite these efforts, the future of the spaces which belong to student unions is unclear. AYY is currently collaborating with other student guilds in an effort to build a large student centre in the heart of the campus area. Depending on their decisions, it will either continue to be a facility with spaces for pre-organized events and clubrooms, or it will become a venue that supports more inclusive and open operations.[55]

DISCUSSION

Following the three years of spatiosocial development in Otaniemi, the study outlined the factors which both enable and constrain suburban transformation. The findings of this study can be summarized in a simple matrix (Table 1).

To answer the question as to whether the suburban transformation of areas built in accordance with the functionalist principles is possible, we need to clarify the outcomes of this process. If density of people or buildings is an indicator of a developed urban realm, then Otaniemi is rapidly transforming into a city. At the same time, the mix of uses is still relatively low and the space does not develop a compact city fabric as the new development continues to reproduce large buildings with setbacks. Depending on how we characterize

the urbanized post-suburb, the transformation process can be evaluated as more or less successful.

The distinction between social production and social construction allows for a shifting of focus from the material factors of density, land use mix, and street connectivity to the social dimension of diversity. If a suburban area is able to develop social diversity and a concentration of different people, then it will feel like an urban space, even if its material form is different from a traditional urban pattern. Attention to social diversity as an indicator of suburban transformation implies more work at the microscale of urban design rather than on the regional or the neighbourhood scale:

> It is at the smaller scales that the city delivers the intensive social encounters that most define the urban experience. . . . It is also the primary scale at which density translates into intensity, largely mediated by the public-private interface and the detailed design of urban space.[56]

However, unlike the material factors, social diversity is difficult to evaluate as we cannot equate it with a numeric parameter. Methods such as public life studies, observations, and interviews are more sensitive towards the changes

	What enables suburban transformation	What constrains suburban transformation
Social production of space	Good transport connections to the city centre and other parts of the city. Larger density of both people and buildings. Recognizing the pitfalls of modernist planning principles and shaping a vision for area development which is explicitly urban.	Existing urban morphology created in line with the functionalist planning paradigms which falls at odds with the compact, dense, mix-use development based on smaller lots and finer grain. The lack of a shared vision by the different stakeholders involved in the development of the area.
Social construction of space	Social diversity which emerges in an organic way.	Semi-public spaces controlled by associations which practise exclusive member-only access.

Table 1. Summary of research findings in relation to theoretical perspectives.

in the social plane, but what can make developers, decision-makers, and other stakeholders apply them in the process of suburban transformation?

CONCLUSION

This article has looked at Finnish suburbs as a resource for urban growth. It has explored the process of suburban transformation following the case of Otaniemi, an area which is actively changing following the regional development and the needs of the growing university campus. The main focus of the study was the extent to which the suburbs, designed between 1960 and 1980 in accordance with modernist planning principles, can be transformed into livable and attractive urban spaces. Informed by two theoretical perspectives—social production and construction of space—this study has outlined the factors which both enable and constrain suburban transformation using the data collected from 2015 to 2018.

Following Talen's and Sennett's definitions of an urban realm, the article suggests a reframing of the outcomes of the suburban transformation process, from increased density to social diversity and concentration of difference. In the case of Otaniemi, this outcome is in line with the strategy of Aalto University, one of the main stakeholders of the development process. The difficulty of shifting the focus towards social diversity as an outcome of suburban transformation lies in the limited influence of material design and planning over social life. According to Garrett Wolf and Nathan Mahaffey:

> Design and Planning professionals have long been influenced by the belief in physically and spatially deterministic power over people and the environment, a belief that their representations of space become space. As a result the goal of design often becomes 'fixing' or directing behavior and culture instead of letting culture happen.[57]

In the Finnish urban planning of the 1920s and 1940s, there was a general consensus among architects that they were the experts who knew how and what people should inhabit.[58] This was evident in many suburban projects aimed at creating a new social order. Enabling the suburban transformation of these areas calls for changes in the planning mindset towards co-creation, iteration, and facilitation instead of prescriptive solutions. 'Letting culture happen' requires widening the spectrum of practices currently used by urban design and planning professionals to include community building, inclusive design, and participatory methods.

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PARK IN FLUX: CHANGE AND CONTINUITY IN THE PLANNING DISCOURSE OF KAISANIEMI PARK

Ranja Hautamäki and Julia Donner

ABSTRACT

The dynamic between change and continuity represents the fundamental tension within the urban planning of historically valuable, protected environments. This study examines a less well-known area of cultural heritage: a historical urban park and the problematics of preservation and renewal. The case study of this research analyses the planning discourse of Kaisaniemi Park, one of the oldest city parks in Finland, situated in the centre of Helsinki.

Divergent planning and renewal projects have been an almost constant part of Kaisaniemi Park's nearly 200 years of history. This article focuses on the three central planning phases of the park: the renewal discourse of the 1910s; the design competition of 2000; and the master plan of 2007, connected to the local detailed plan. Opposing ideals and styles collided in the park renewal process of the 1910s. The architectural competition in 2000 aimed at redefining the identity of the park and replacing the historical structure with new meanings and contents. The master plan of 2007 sought a new balance between continuity and transition.

With the case study of Kaisaniemi, we explore how the renewal and preservation intentions appear in the planning discourse. What were the arguments and who were the actors behind this discourse? We link our case study to a wider framework of the preservation of urban parks and examine how continuity materializes in this context. We also consider how to preserve cultural heritage, its essential dimension being change, and the contradictory interpretations of different eras.

KEYWORDS

Historical urban park, Kaisaniemi Park, planning discourse, preservation

PRESERVATION OF HISTORICAL URBAN PARKS: THE DYNAMIC BETWEEN CONTINUITY AND CHANGE

Introduction

In honour of the 2018 European Year of Cultural Heritage, it is appropriate to explore urban cultural heritage and its preservation. Our article addresses historical urban parks, a phenomenon at the margin of cultural heritage. The preservation and recognition of urban parks has remained underdeveloped compared to architectural heritage.[1] Urban parks have often been regarded as land use reserves or frameworks for a variety of changing needs or events. Many parks have encountered changes which have weakened their historical characteristics, composition, vegetation, or use.[2] Furthermore, the ideologies that determined the initial park design or original use have remained undiscovered or underrated. Renewal has been a self-evident part of urban parks, even when their historical values would have vindicated their preservation. Preservation of urban parks substantially differs from conservation of architectural heritage. Parks are shaped by natural processes, and vegetation, an essential part of them, is transient. Change is inbuilt in the evolution of urban parks, and the dynamics between transition and continuity establishes the fundamental tension for park renovation.[3]

The article discusses the depicted uneasy relationship between continuity and change with the case study of Kaisaniemi Park, one of the oldest city parks in Finland, situated in the centre of Helsinki. Divergent planning and renewal projects have been an almost constant part of Kaisaniemi Park's nearly 200 years of history. The case of Kaisaniemi Park demonstrates that the development of urban parks, as with other urban structures, is not linear. Instead, the plans and solutions concerning them are under continuous re-evaluation. In the case of Kaisaniemi Park, diverse modernization intentions have eventually led to indecision and stagnation. Although the park is currently formally protected, the status has not resulted in any obligatory practical measures. Instead, the park has been left to deteriorate. Our observations of the problematics concerning the preservation and renewal of Kaisaniemi Park and the low status of urban parks' cultural heritage in general provided the initial incentive for this article.

The research contribution of the article is twofold. With the case study of Kaisaniemi, we explore how continuity and change are manifested in the planning discourse of the historical Kaisaniemi urban park. How have the renewal measures been justified and what kinds of objectives and actors

underpinned them? Which attributes emerged as the park's values and features worth preserving? We contextualize our case study in a wider discussion framework on the preservation of urban parks and consider how to preserve green heritage, its essential dimension being change, and the contradictory interpretations of different periods.

Our article is divided into four parts, including this introduction. In the second part, we examine historical urban parks as a research topic and the discourse on their preservation. At the end of part two, we position Kaisaniemi Park within the context of Helsinki's historical parks. The third part analyses the planning history of Kaisaniemi Park with regard to its most significant reform phases, which elucidate the renewal and preservation process of historical urban parks and the conflicts and discussions connected to that. In the fourth and final part, we contextualize the case study's observations in the wider context of park preservation.

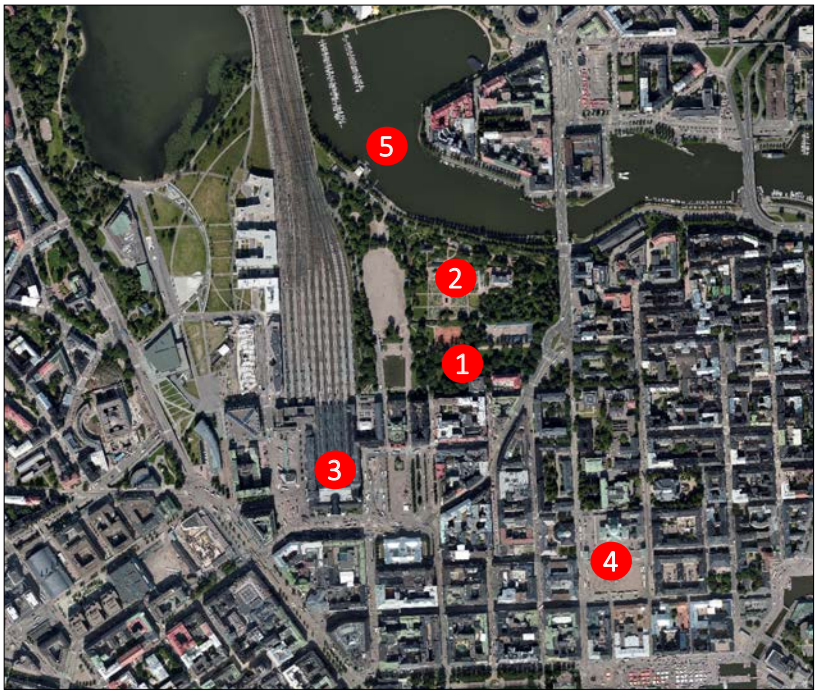


Figure 1. The Historical Kaisaniemi Park is located in the centre of Helsinki. 1. Kaisaniemi Park, 2. Kaisaniemi Botanical Garden, 3. Central Railway Station, 4. The Senate Square, 5. Kaisaniemenlahti Bay. City of Helsinki, City Survey Services, 2017.

URBAN PARKS AS A RESEARCH TOPIC AND THE THEORETICAL FRAMEWORK

Urban Park Research

Urban green spaces and parks have stirred growing interest, particularly due to the ecosystem services they offer and from the perspective of their ecological and recreational values.[4] Urban green infrastructure also contributes to climate change adaptation owing to its role in stormwater management and the alleviation of the urban heat island phenomenon. As new nature-based solutions are being developed to support sustainable cities, the old parks and their historical values are overshadowed. Urban parks gained momentary attention in history research a few decades ago,[5] but after that, research outputs have decreased. It is also noteworthy that historical research on urban parks has not taken a clear stance on park preservation. Although urban parks are recognized as an essential feature of urban environments, their status as cultural heritage remains weak.

This study is positioned within the theoretical framework of historical urban park research. The history of urban parks gained international attention in the 1980s and 1990s as part of the growing interest in socio-historical urban research. American researcher Galen Cranz's *The Politics of Park Design* (1982) discusses the typologies of park design and the intentions behind them.[6] Her classification describes the successive park design stages of the pleasure ground emphasizing aesthetic ideals; the reform park following social reform; the recreation facility; and the open-space system. Hazel Conway's research examines the planning practices and design elements of parks in Britain from a sociohistorical perspective.[7] In the 1990s, Maunu Häyrynen's doctoral thesis 'Maisemapuistosta reformipuistoon' (1994) shed light on the history of Helsinki's urban parks. Häyrynen investigates the change that took place in the design of urban parks from the 1880s to the 1930s and the transition from the emphasis of aesthetic ideals to reformist functional content. From the perspective of our article, Häyrynen's thesis is important, because Kaisaniemi Park is a core example of the transitional phase in park planning. After Häyrynen's work, Catharina Nolin completed her doctoral thesis 'Till stadsbornas nytta och förlustande' on Sweden's urban parks.[8] These studies demonstrate the evolution of the urban park institution and the social objectives which have steered their development. However, preservation has received less attention. Preservation is discussed in various inventory and action reports, but they do not generate actual academic discussion—critical questioning and reflection.

Preservation Framework for Historical Urban Parks

Negotiations between continuity and change, preservation and renewal are deeply embedded in the planning discourse of historical urban parks. Whereas renewal depends on continuous growth and urban development and the often momentary needs of vitality, preservation is based on continuity and the idea of fostering cultural heritage for future generations. Although institutional preservation already has an established place in urban planning, the values of green heritage and particularly urban parks are still poorly recognized. The inadequate status of parks is also evident in the fact that the International Council of Monuments and Sites (ICOMOS) only produced a policy document[9] for the protection of historical urban parks in 2017. As a comparison, it is noteworthy to point out that the equivalent document for architectural heritage, the Venice Charter, was prepared already in 1964.[10] The legislative position of landscape and garden heritage is sandwiched between architectural heritage and nature conservation. According to Häyrynen, 'it could be generalised that parks and garden art have been left between two categories highly prestigious in our culture, architecture and nature. Parks are not "genuine" nature nor are they "real" art; their designers have not enjoyed the widespread national and international prestige felt for architects, so their representatives, styles and typologies have remained unidentified.'[11]

Despite their inadequate institutional status, historical urban parks constitute an integral part of urban cultural heritage. They can be considered historical gardens whose preservation leans on the Florence Charter of 1981. The Florence Charter is an addendum to the principles of the Venice Charter (1964), and gardens are juxtaposed with historical monuments in it.[12] Fundamental to the identity of historic urban parks is their composition and dependency on such elements as vegetation, spatial configuration, topography, and vistas. According to the Document on Historic Urban Public Parks, parks often accrue a range of values, including aesthetic values for their design or character, horticultural and ecological values, and social and intangible values to local or wider communities.[13] Parks have meaning to urban residents as places of recreation, gathering, celebration, and protests. Due to these versatile values, historical urban parks must be protected and their stewardship based on careful historical research, inventories, and evaluation.[14]

Thus, the protection of historical parks can be perceived as the union of social and material, whereby endorsing experienced values and social meanings is

as important as preserving authentic materials, structures, composition, and vegetation.[15] Experienced values are also associated with the interpretation of how earlier generations have experienced a place and what kinds of symbolic meanings have been attached to it.[16] A significant part of experiencing a park is the time dimension: the changing seasons and the dynamics of the vegetation—growth, ageing, and renewal. Because of the time dimension, fostering the authenticity of parks differs from preserving the original building material of architectural heritage. Vegetative environments are shaped by natural processes and their key material, vegetation, must be renewed from time to time. With regard to vegetation, the original form also changes, and each natural growth stage of vegetation is equally authentic.[17]

Although traditionally authenticity has referred to the original state and characteristics of a site, the concept can be understood in a wider context. According to this interpretation, authenticity includes also layering and the changes that have taken place at the site, which have engendered positive characteristics worth preserving.[18] The layered nature of urban parks is characteristic to them, because they often embody many construction phases which have utilized the structures and vegetation of the previous phases.[19] Consequently, urban parks are by nature cultural heritage which incorporates the dimension of change. The distinctive characteristic of their preservation is the interpretation of the transition phases and steering future changes.

Understanding the park as an evolving process has a clear parallel with the Historic Urban Landscape (HUL) recommendation,[20] adopted by UNESCO in 2011. The emergence of HUL reflected a paradigm shift in conservation as the approach understood the city not merely as a series of buildings but as a living entity and interaction between culture and nature. Therefore, HUL emphasized the management of change, recognizing urban heritage as a vital resource in enhancing liveability.[21] Accepting change as part of cultural heritage was adopted largely also in Finnish strategies. For example, the cultural environment strategy in 2014 stated that 'cultural environment can be renewed and adapted to the changes brought by time while preserving its central features of different ages'.[22]

Although change is part of cultural heritage, it is vital to consider what kind of change is acceptable and where to draw the line after which the landscape will be destroyed or exploited.[23] The ICOMOS document voices a severe concern that the cultural heritage embedded in urban parks is under threat.

The lack of preservation status for parks has led to numerous alterations either through gradual deterioration or precipitous renewals, which have impaired their historical value. Urban parks have been regarded as reserve grounds, spaces corresponding to the demands of divergent eras and actors.[24] Parks have been confronted with the ill-considered establishment of new functions and structures, such as sports and playground facilities, transport routes, parking areas, substations and other technical equipment, without the backing of a comprehensive plan. Parks have been the object of unfounded revamps and 'facelifts' based on the shifting fashions and predilections.[25]

Eeva Ruoff, who has studied urban parks' threat factors, has indicated that the reduction in maintenance costs and the requirements of efficient upkeep are the key problems.[26] These have resulted, among other things, in the removal of high-maintenance structures and simplifying carpet beddings, tarmacing of gravel paths, and widening paths for maintenance equipment. Due to technical requirements, distinguishing furnishings, such as lighting and benches, have been renewed and standardized. The distinctive features of historical urban parks have been replaced by contemporary norms and standard solutions for park construction.[27] In addition to impoverishing park landscapes, the increasing consumption is also a threat to historical urban parks. Growing use and public events have damaged plants and structures and weakened parks' aesthetic and social value. The ICOMOS Document highlights especially the need to restrict or monitor park use and the necessity to create enough new parks to provide sufficient recreational facilities for the growing population.

Helsinki's Historical Urban Parks

Following international example, Finland awakened to the preservation of its historical parks in the 1990s. Helsinki's historical parks were highlighted in the green space programme,[28] and simultaneously, the first extensive urban park restorations were initiated in Esplanadi and Kaivopuisto parks. The preservation methods were developed and, for example, the city prepared a sectional target and implementation programme for Kaivopuisto, which was based on the careful analysis of the park's historical phases.[29] The preservation methods in local detailed planning were also advanced in the late 1990s. Preservation of parks through urban planning was almost non-existent prior to that. For instance, in 1972, the local detailed plan for Tähtitorninvuori only incorporated a definition that it was a 'historical park' without explicating the obligations of the stipulation. The pioneering 1998 Kaivopuisto urban plan,

however, introduced an elaborate stipulation: the park is historically, culturally, and park-architecturally a prestigious part of the cityscape, and its trees, shrubs, and other plantings must not be destroyed nor its protected structures changed, dismantled, or destroyed. The stipulation also encompassed an amendment detailing that the building permits or action permits in the area must include a statement from the museum authorities and the Public Works Department. In addition to the local detailed plans, the city master plan of 1992 highlighted historically significant urban green spaces and cultural landscapes as an integral component of cultural heritage. The city master plan of 2002 further expanded the notion and introduced the concept of landscape culture referring to the distinctive green environments of the city. The status offered by master plans has steered land use planning and established the preconditions for composing local detailed plans for preservation.[30]

The City of Helsinki has carried out pioneering work to protect and renovate historical urban parks. The significant historical parks in the city centre, including Kaivopuisto, Esplanadi, Sinebrychoff, and Tähtitorninvuori have been restored and their importance recognized. Many smaller and more recent parks have also been restored. From this perspective, it is interesting to debate why Kaisaniemi Park, as Helsinki's oldest urban park, is not among them and why its local detailed plan for preservation was only initiated in 2007. In addition to the problematic characteristics of the site itself, one influencing factor is the value discussion embedded in the decision-making of different eras. Characteristic to the 1990s and 2000s was the emphasis of cultural heritage values, but in the 2010s, attitudes have changed. The strategic comprehensive plan of 2016 implies the paradigm shift in preservation and the discourse emphasizing the city's growth and efficiency.[31]

KAISANIEMI: HELSINKI'S OLDEST URBAN PARK IN A STATE OF FLUX

A Park amidst a City: Historical, Layered, Fragmented Kaisaniemi

The approximately seventeen-hectare Kaisaniemi Park in Helsinki city centre is the city's oldest urban park originally established for public use. It borders in the south on the Kluuvi blocks, in the west on the main railway station yard, in the north on Kaisaniemenlahti Bay and University of Helsinki Botanical Garden and in the east on Unioninkatu and Kaisaniemenkatu streets. When the park was originally planned in the early nineteenth century, it was a significant part of the city's new empire-style centre and fitted with the archi-

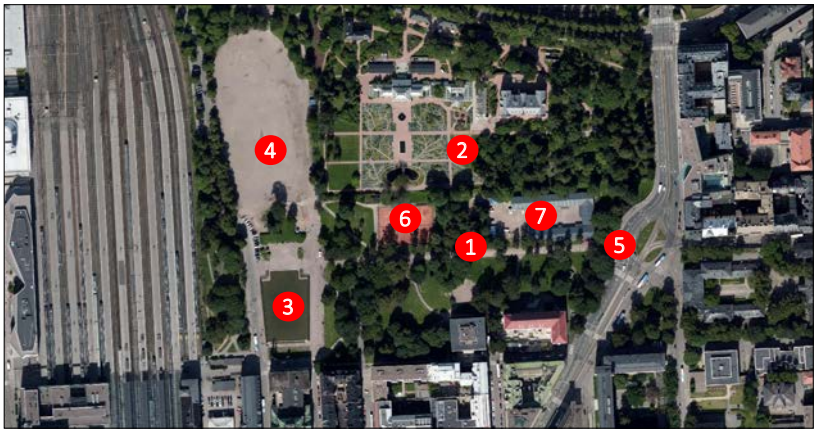


Figure 2. Aerial photo of Kaisaniemi Park and its central features: 1. Central birch alley, 2. Botanical garden, 3. Water basin, 4. Sports field, 5. Gate to the park, 6. Tennis fields, 7. Temporary kindergarten. City of Helsinki, City Survey Services, 2017.

Figure 3. The central birch alley of the park. Photo: Sarianne Silfverberg.

Figure 4. The water basin in front of the national theatre. Photo: Sarianne Silfverberg.

Figure 5. The enclosed botanical garden next to the park. Photo: Ranja Hautamäki.

Figure 6. An open-air concert in Kaisaniemi Park. Photo: Ranja Hautamäki.

tectural and garden design ideals of the time. In architect Carl Ludwig Engel's plan of 1827, Kaisaniemi was designed as a formal axial composition, but a large part of the area was left in its natural state and treated as a landscape

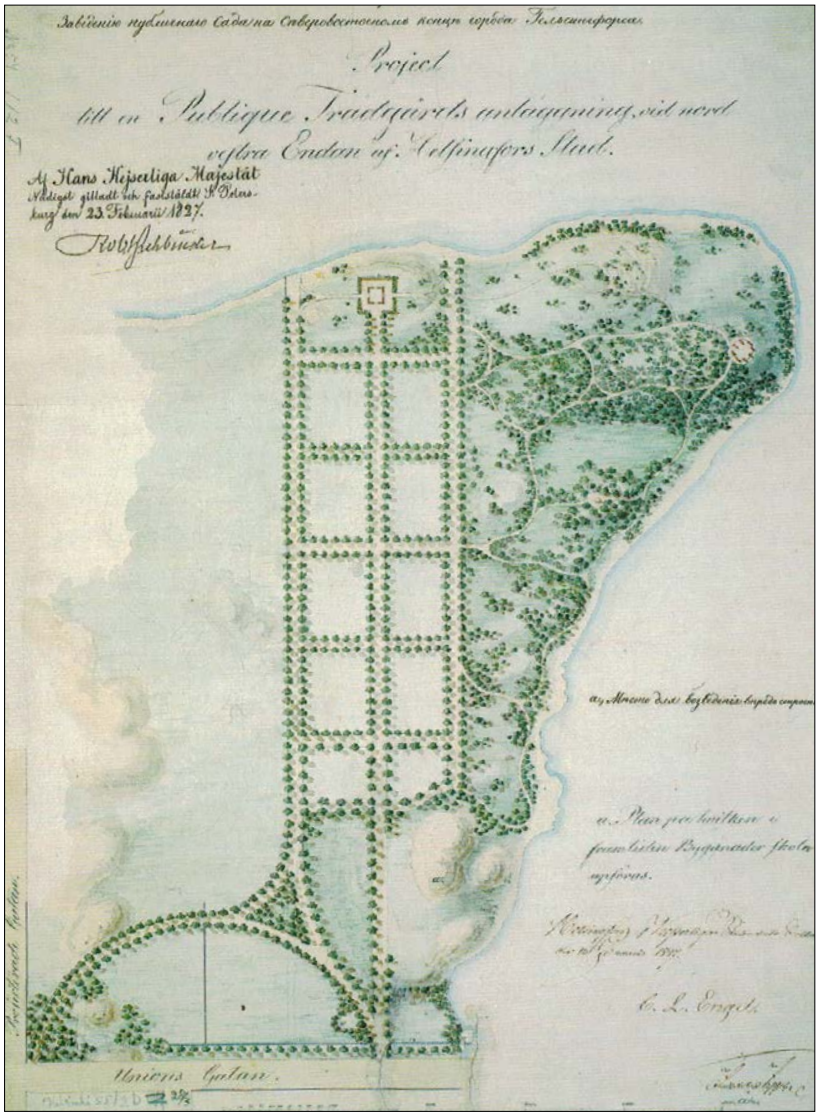


Figure 7. Carl Ludwig Engel's plan of 1827. Kaisaniemi Park included a formal garden and a landscape park next to the shoreline. National Archives of Finland.

park. The hilly terrain and Kaisaniemi bay shoreline offered beautiful park views, whereas the axial grid structure connected the park towards the new town centre and its main street, Unioninkatu.[32]

After Engel made his plan, a new urgent need emerged and changed the implementation of the plan.[33] The University Botanical Garden was decided to be moved to Kaisaniemi after the great fire in Turku. It replaced most of the formal garden by Engel, and Kaisaniemi Park was built as a landscape park next to the botanical garden.[34] Over the course of the nineteenth century, Kaisaniemi Park established itself as a popular destination for strolls, and its ponds, streams, and leafy trees were imprinted in the memories of the city's residents. Helsinki's first sports field opened in the park in 1884, reflecting the social reform ideals of the day. It remained the only sports field in the city until Eläintarha sports field was founded in 1910.[35]

Kaisaniemi Park established its position as an important public park with aesthetic and functional dimensions early. However, in the twentieth century there have been many attempts to renew the park and expose it to numerous different interpretations. The park's first renewal phase took place approximately a hundred years later, when the park had fallen into a state of disrepair and it no longer met the requirements of the day. In the 1910s, the future direction for the park turned into a planning dispute with conflicting stylistic, professional, and political visions for the park. As a result of the conflict, a decision was made in the late 1920s to take measures to renew the park. The work was, however, not completed.[36] Approximately seventy years later, in the early 2000s, the park's renewal debate resurfaced. This time, the objective was to find new ideas and development directions through an international landscape architecture competition which aimed to find 'a high-quality, creative solution for a new master plan which respects the park's historic value'. However, the winning entry was not implemented.[37] Seven years later, the park's planning was initiated again as part of a local detailed planning process aiming to preserve the park. The restoration in accordance with the plan has not yet been carried out.[38]

The tension between renewing and preserving has emerged as one of the main themes of the park. It has encountered divergent expectations, urban development plans, initiatives of private actors, and different interpretations of its nature. The diverse interpretations have also affected the park's identity. Instead of possessing a distinct identity based, for example, on the park's early

phases, Kaisaniemi's character is ambiguous, and the successive renovation plans have become a distinctive feature of the park. Kaisaniemi Park's changing identities and the conflicting aims for it have also had an impact on the park's preservation discourse and on how its cultural heritage is understood. As Helsinki's oldest urban park, the area is unquestionably part of the city's historically significant cultural heritage, but the park's preservation has not become a self-evident part of its design.

This article examines three different planning phases of Kaisaniemi Park's complex past with the corresponding plans. Of the 1910s' planning phase, we will explore two differing visions for the future of the park. The first one is the city head gardener Svante Olsson's 1911 plan (*Förslag till reglering av Kajsaniemi park*) to renew the park. His proposal highlighting traditional landscaping styles is compared with Bertel Jung's reformist plan (*Projekt till omreglering af Kajsaniemi park*) of the same year.[39] Of the entries to the landscape architecture competition in 2000, we examine two different proposals which illustrate vividly the conflict between change and preservation: '131517' by Stefan Tischer, Susanne Burger and Francesca Venier from Germany pursuing renewal and 'Helmi' by Ria Ruokonen and Eeva Byman from Finland advocating restoration.[40] Finally, we look at the master plan by Gretel Hemgård produced in 2007, which is the basis for the local detailed plan for preservation.[41] The plan sought a new balance between continuity and transition, reconciling the contradictory objectives of divergent interests—sports facilities, bicycle routes, events, and finally preservation. Thus, this article's Kaisaniemi narrative is based on the plans for the park, the grounds for the plans, and the discussions on them. The empirically collected and defined, context-bound data play a central role. Our case study on Kaisaniemi Park is based on the close reading of the selected plans, which, in this context, refers to the interpretation of the meanings and their detailed analysis in light of our research questions. With this narrative analysis, we look for the key themes and main points, the repetition of information, distinctions, and contrasts. These analytical tools are used to categorize the empirical material and discover the frame-shaping elements of Kaisaniemi Park's planning and preservation discourse.[42]

From a Classical Urban Park Ideal to a Modern City Centre Park: Discourse on the Future of Kaisaniemi in the 1910s

Kaisaniemi Park's planning phase in the 1910s was central to Helsinki's park policy and highlighted the collision of traditional and reformist renewal ideas

and the division between the professions endorsing them. Maunu Häyrynen has examined the development of Helsinki's park policy and illuminated Kaisaniemi Park's planning discourse in the 1910s and 1920s. The two opposing parties of the debate, the 'Kaisaniemi quarrel', were Helsinki the city head gardener Svante Olsson and the Helsinki city town planning architect Bertel

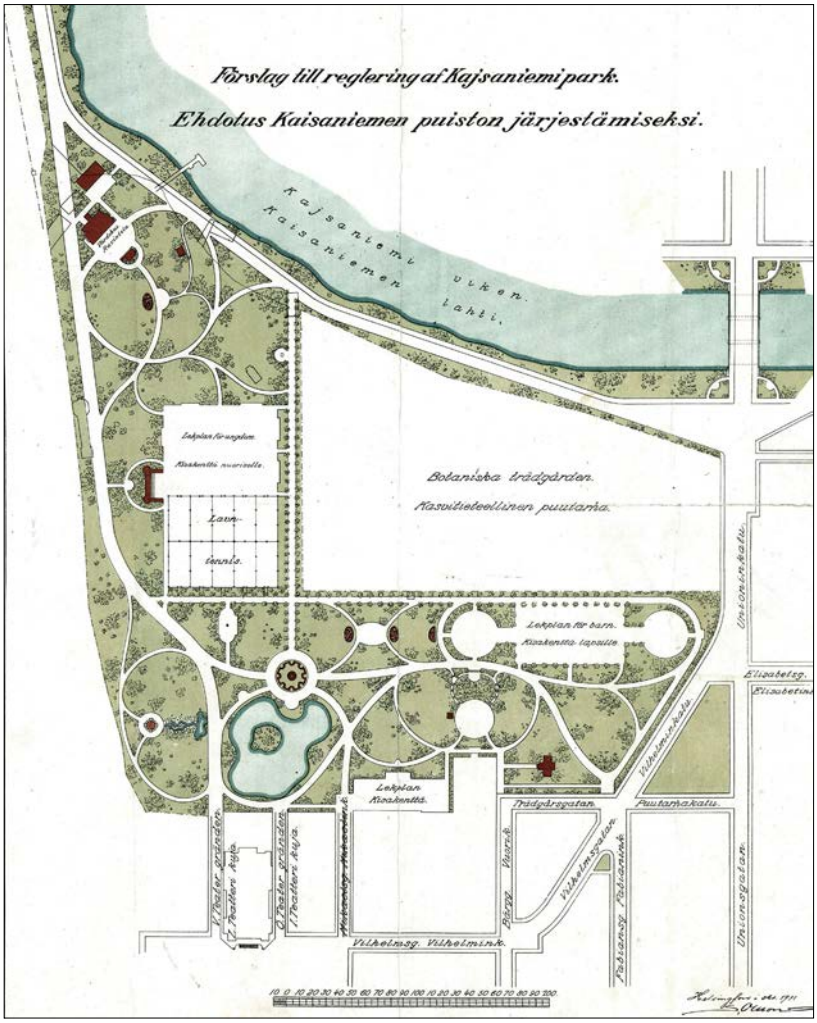


Figure 8. City head gardener Svante Olsson's plan of 1911, illustrating a traditional pastoral scene in a continental landscape style. Helsinki City Archives.

Jung with their respective supporters. The debate was initiated by Olsson who was part of the old school and who, as the city gardener, was in charge of park planning under the city's Gardens Committee. Jung, on the other hand, represented the new era's ways of thinking and, according to his vision, parks should be linked more widely to local detailed plans and urban planning. Kaisaniemi, as Helsinki's oldest park, was a natural arena for this debate. The discussion on the boundaries between the professions also highlighted the values guiding the plans and the requirements the plans should respond to. The renewal plans for the park stemmed, above all, from the need to find solutions to topical problems, the core ones being the thoroughfare through the park and improving play and sports facilities.[43]

Olsson's Plan of 1911

When the discussions on Kaisaniemi planning started in earnest in 1911, the public works board ordered plans from the city head gardener Svante Olsson and the town planning architect Bertel Jung. Olsson's aim was to create a pastoral pedestrian park in a continental landscape style with interesting park vistas, meandering paths, and beautiful free-form planting. Compared to the existing situation, the new plan included a children's play area and a series of smaller open spaces.[44] In the discussions for the future of Kaisaniemi Park, Olsson and his supporters' aims were to preserve the traditional landscape garden as the basis of the design. This continental style was defended in the council debates on the park's history, Finnish landscape and the nature of the nation, as well as its low implementation cost. The city head gardener bypassed the park's present functional requirements and even denied them in his statements According to Olsson, ball games were in no way suitable for an elegant city centre park.[45]

Olsson's vision for urban parks' stylistic appearance and content was tied with tradition in two ways. On the one hand, his plan was conceptually connected to the history of the park. Just as C. L. Engel's 1827 plan for the park, Olsson's plan was based on the idea of nature as a haven in the midst of the city. However, the city head gardener did not return to C. L. Engel's formal plan. Instead, he updated the pastoral scene by referring to the tradition of park design and the German models of landscape gardens.[46]

Jung's Plan of 1911

Bertel Jung's proposal (1911) was simpler than Olsson's plan and reflected the reform park ideas with sports and play facilities located along

the two main axes. Compared to Olsson's pastoral landscape style, Jung's park represented a formal and axial composition. The natural swan pond, characteristic of the pastoral park, was replaced with new rectangular water features. The bigger pond, with its plantings, was located in front of the National Theatre, built in 1902.[47]

The reform park was presented as an up-to-date solution suitable for modern lifestyle and the park's style and content. The renovation was expected to be

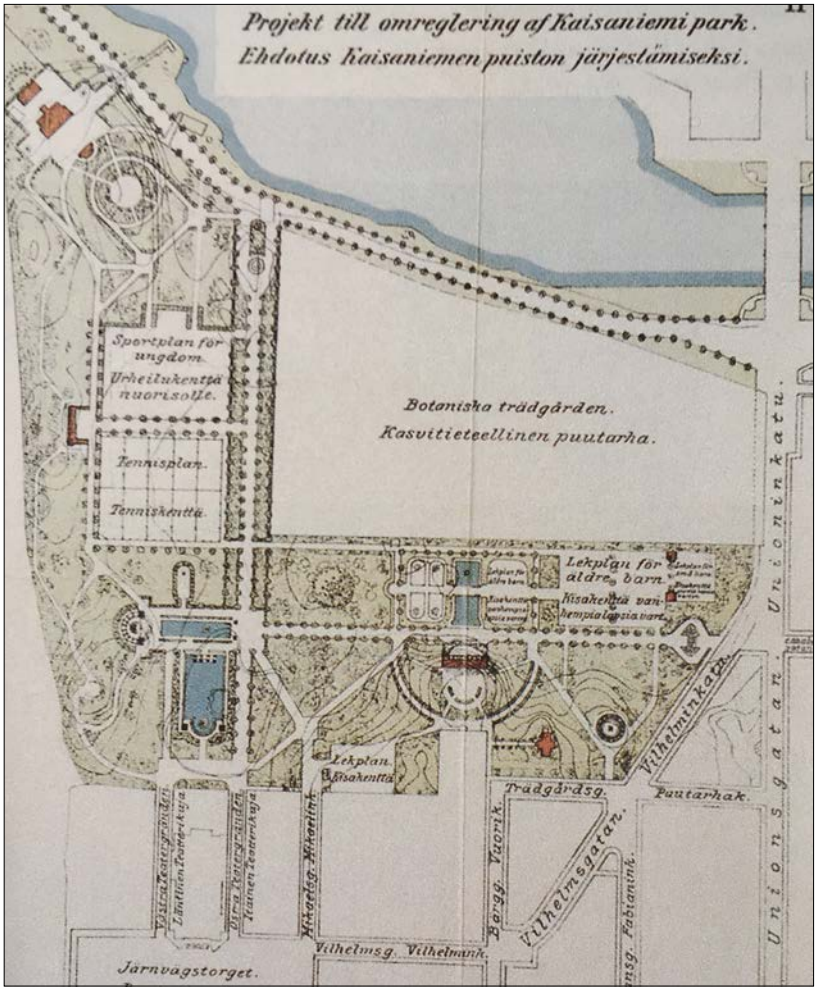


Figure 9. Town planning architect Bertel Jung's plan of 1911. Jung proposed an axial composition with functions corresponding to modern needs of city dwellers. Helsinki City Archives.

noticeable; the park was, after all, the most central and prestigious urban park in the city. Urban parks' acreage had to be efficiently used, and parks were there to serve the residents of a growing city. Whilst the formal style of design was presented as 'honest', understanding it required knowledge of architecture, urban planning, and aesthetics. Sports, playing, and games were significant in the agenda set out for the park. Unlike before, nature in the city was not perceived as a value in itself. It was more important to offer urban residents sports and exercise facilities and space for events in the city centre. All in all, the reform park, according to its defenders, most of whom represented architects, was to be more democratic than its predecessor.[48]

Different Interpretations of Renewal

Both Olsson's and Jung's plans aimed to achieve a functional, impressive, and modern urban park, but the ways of implementing the required renewal significantly differed from one another. What was conceived as modern in the last decade of the nineteenth century no longer was so in the early twentieth century. The city head gardener Olsson wanted to show at the start of the new century that he mastered the garden art tradition in an urban park context and wished to create a continental appearance for Helsinki's most important park. However, renewal based on the garden art tradition was regarded as old-fashioned.[49] Bertel Jung's design was closer to the fresh ideas and notions on the function of urban parks prevailing in urban planning. The park corresponded both functionally and aesthetically with the contemporary aspirations of rationality.[50]

The plans were also evaluated on the basis of how the old park's features and elements were preserved in the proposed revamp. Jung's plan took into consideration the area's natural features and preserved, despite the suggested alterations, the park's original character better than Olsson's proposal. In 1912, Jung produced a map to support the reform park solution, presenting Kaisaniemi Park's existing pathways along with the new paths in Olsson's plans. Jung wanted to prove that the curvy paths in Olsson's plan would change the old park as much, if not more, than Jung's own proposal based on a rectangular network of paths.[51]

The city council adopted Bertel Jung's proposal in 1912. The renewal work in accordance with Jung's plan was interrupted by the First World War and the period of instability following it.[52] After the war, in the early 1920s, the discussion on the park's fate was initiated again. The City Treasury asked the

following town planning architect Birger Brunila to prepare a proposal based on Bertel Jung's plan. However, this renovation was also postponed to the end of the decade.[53]

Landscape Architecture Competition of 2000: Renewing or Preserving?

The discussion of Kaisaniemi Park started again in the late 1990s. The forgotten park epitomized the idea of the 'geography of fear'. As a blind spot in the city centre, it was often described in surveys as its scariest place, and walking through the park alone, particularly in the dark, was not recommended. Kaisaniemi Park was part of the city centre plan to review the future of Töölönlahti Bay, traffic solutions for the centre, and the requirements for sports and exercise facilities.[54] In 1999, the Helsingin Sanomat Centennial Foundation donated one million Finnish marks to the City of Helsinki towards a Kaisaniemi planning competition. Six design groups were invited to the competition: Jeppe Aagaard Andersen (Denmark), Susanne Burger and Stefan Tischer (Germany), Eeva Byman and Ria Ruokonen (Finland), Michael R. van Gessel (Holland), Gretel Hemgård (Finland), and Jyrki Sinkkilä (Finland).[55]

The aim of the competition was to find a 'high-quality, creative solution for a new master plan which respects the park's historic value' forming the basis for the local detailed plan and the implementation plan for the park renovation.[56] The competition programme emphasized the park's design and stressed that preserving the park or place as such was not recommended. The programme also noted that one style feature should not upstage another nor one historical phase be taken as a target for the design. However, the park's phases had to be taken into account in the plan, but the solution should not be a collection of historical fragments.[57] Therefore, the competition programme created per se a tension between the renewal and preservation of the park.

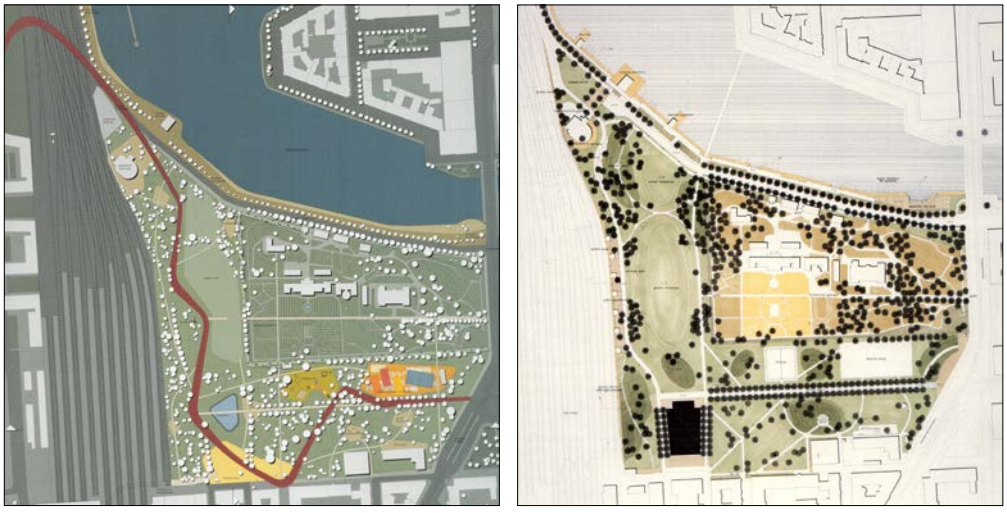
Discreet Historical Charm or Contemporary Perspectives?

The competition jury noted in its evaluation that all six competition entries were highly measured and carefully researched park plans. The collection of entries contained proposals aiming to renew the park as well as ones emphasizing the park's historical characteristics. The international competitors had a more relaxed attitude to preservation whilst the Finnish participants focused on the park's historical design phases in their plans. According to the committee, the Finnish competitors Eeva Byman and Ria Ruokonen's 'Helmi' had the strongest link to the park's earlier phases. The German competitors Stefan Tischer, Susanne Burger and Francesca Venier's proposal '131517', on

the other hand, represented the most modernizing outlook and was chosen as the winner of the competition.[58]

In their 'Helmi' proposal, Eeva Byman and Ria Ruokonen took into consideration the park's historical phases with particular care, and the plan was built on the characteristics shaped over the course of the twentieth century. Their aim was to create a park landscape based on the existing features, but one which would be more general and simpler, establishing a contrast to the detailed and diverse milieu of the adjacent University of Helsinki Botanical Garden. The plan can be viewed as a modern interpretation of the late nineteenth century landscape architecture ideals. However, the proposal was considered to be too cautious. According to the committee, it was lacking 'compelling charm' which as a wording reveals the preconceptions for and intentions of the competition.[59] The historical characteristics had to be considered but emphasizing them was too much.

The competition winners Stefan Tischer, Susanne Burger, and Francesca Venier's proposal, '131517', aimed to reinterpret the historical park. With regard to this proposal, the committee noted that it introduced the present



Figures 10a and 10b. Two entries for the Landscape Architecture Competition for Kaisaniemi Park in 2000. On the left the winning entry '131517' by Stefan Tischer, Susanne Burger, and Francesca Venier and on the right 'Helmi' by Eeva Byman and Ria Ruokonen. The two plans represent opposite approaches: bold renewal and careful renovation. Source: Kaisaniemen puiston maisema-arkkitehtuurikilpailu (2001).

day with natural ease into the park. The aim was to inject a breath of fresh air to Kaisaniemi Park, instead of a discreet solution referring to the park's history. The proposal featured a wide, arresting red lane across the park as a unifying feature; the idea was also to create new connections within the urban structure. The new lane replaced the park's original north–south and east–west axes and would, if implemented, have meant the removal of not only the water feature but possibly also the park's most recognizable element, the birch avenue. In the winning proposal, as was the case with the previous one, the gravel sports pitch was replaced by a large landscape space, the 'Great Lawn' and 'Vappu Lawn'.[60] Replacing the park's distinctive sports field with a lawn can be viewed as an aim to strengthen the park-like nature of the place and to fade its functional content, characteristic of its history.

Although the competition was a big investment bringing a lot of publicity, the winning proposal was never implemented. After the competition, the city organized many discussion forums on the competition outcome and the park's further planning.[61] The city district's sports actors, among others, voiced their concern regarding the direction the park's sports opportunities were taking. The winning entry was lacking a general sports field of similar size to the existing one. Experts in the field—landscape architects and historians—also noted the fact that the proposal overlooked the park's original structure and criticized the plan's interference with the park's characteristic axes composition.[62] Despite all the criticism, the competition was a discussion opener and helped define the direction the park's development should take.

The Park Plan of 2007 and the Local Detailed Plan for Preservation-Stagnation and New Value Discussion

The wishes placed on the landscape architecture competition for the restoration of the park were not fulfilled due to conflicting visions. The indecisions led to stagnation and the deterioration of the park. The worn structures, aging vegetation, and the general dilapidated appearance weakened the identity of the protected urban park as a prestigious cultural heritage site and was likely to increase the feeling of insecurity people experienced in the park.[63] The park was also facing increasing pressure as a venue for sports functions and ever-expanding park events. Of the different sports disciplines, Finnish baseball and football had had a growing presence in the park since the previous century. Concerts and events were also part of Kaisaniemi's history, but the scale of the events required new arrangements that took the park to the edge of its endurance.[64]

As the park was left to wait for future decisions, a new opportunity for a value discussion presented itself. In 2006, the city produced new guidelines for Kaisaniemi's planning based on the criticism of the landscape architecture competition. The new guidelines emphasized the importance of the park's historical features and aimed to ensure that Kaisaniemi was, above all, 'an attractive urban park in the city centre, a pedestrian park, leisure park and a local sports park—an everyday park for the residents'.[65] The new vision clearly looked for a balance between renewal and preservation and Maisemasuunnittelu Hemgård Landscape Design, which had participated in the competition, was chosen to implement the vision.[66]

Figure 11. The park plan Kaisaniemi of 2007 by Gretel Hemgård. The plan seeks a balance between preservation and renewal. Helsinki City Planning Department.

Kaisaniemi Park's Master Plan of 2007

The core thinking behind the 2007 master plan project was to emphasize the park's historical characteristics but also to offer a new interpretation of its history. The plan by landscape architect Gretel Hemgård and architects Kari Järvinen and Merja Nieminen aimed to preserve the park, but it also accepted the park's evolution and place within the developing city. They proposed new elements for the park, examined options for the new form of the water feature outside of the National Theatre, and for the location of a new café building. The plan's central content also included a thoroughfare through the park and opening a new entrance to the University of Helsinki Botanical Garden from the park. The plan did not suggest major changes for sports, but the facilities were more centralized within the park. The sports fields on the western side of the park remained and the smaller field in the east was replaced by a high-quality play area. The solution was likely to have been influenced, on the one hand, by the status of sports in Kaisaniemi's history and, on the other, by today's requirements.[67]

An important aim was to provide a basis for the local detailed plan whose objective, laid down in 2008, was to preserve and restore the park in a way that would fit its status as an esteemed urban park. The plan emphasized the preservation of the park's characteristic axes. Although the plan aimed, above all, for the preservation of the park, it also contained solutions which conflicted with the park's existing historical elements. For example, the route choice for the extension of the major cycling route, Baana, across the north of the park, would infringe on the park's atmosphere and weaken the values preserved in the area. Furthermore, the sound barrier by the railway tracks would conceal the view from the park to the west.[68] The examples show that it is difficult to reconcile conflicting aims, and even if preservation and restoration are primary goals, compromises are inevitable.

The proposed measures of the local detailed plan and park plan were never implemented. The park's one-off substantial restoration was not financially feasible, and it was decided to restore the park in stages one area at a time. In 2016, the City of Helsinki commissioned an environmental history study and development principles as a basis for the park's restoration measures. Thus, the discussion on the balancing act between Kaisaniemi Park's renewal and preservation is still ongoing.[69] Meanwhile, the park has been left to deteriorate and exposed to temporary uses and vandalism.

MULTIPLE DIMENSIONS OF URBAN PARK PRESERVATION

In this article, we have examined Kaisaniemi Park as an example of the struggle between renewal and preservation. Urban parks, such as Kaisaniemi, convey the idea of something new and modern which manifests itself in the desire to renew them. Kaisaniemi reflects in an interesting way how change has been a motivation in different eras' planning and urban development. The renewal objectives of Kaisaniemi Park's first phase in the 1910s demonstrates Helsinki's journey into a modern metropolis. Kaisaniemi's designers, the city head gardener Svante Olsson, and the town planning architect Bertel Jung all shared an understanding of Kaisaniemi's position, but their interpretations of what kind of park would be suitable and best serve urban residents differed. Olsson advocated scenic landscape style while Jung supported more modern and function-oriented expression. However, the proposals were united in their belief that Kaisaniemi was a resource for the growing city.

The renovation plans in the 2000s clearly took a stance on history and the modern requirements of an urban park. The landscape architecture competition's winning entry aimed for renewal and did not view history as an unquestionable driving force behind a viable urban park. The competition programme, which steered the designs, also conveyed a similar message: the competitors were warned not to take one historical phase or stylistic appearance as the guiding light for their design, and simultaneously, the park's many layers were perceived as problematic and fragmented. In the 2007 park plan and the local detailed plan to follow it, the park's preservation was in the focus and the aim was to bring together the park's new needs and its historical values. The historical survey, commissioned by the authorities, supported this understanding.

What would be the next step for Kaisaniemi Park? Today, the park brings up a strong contradiction between its formal preservation status and current state. Helsinki's oldest urban park has an unusually strong preservation status for a park. In addition to its preservation through the local detailed plan, Kaisaniemi Park has also been classified as a significant national cultural environment and has been placed in the highest class in the City of Helsinki's prestigious cultural environment classification system.[70] The joint aim of these measures is to recognize the park's value as a historical park with an ambition to preserve its historical and landscape features. However, despite the park's status, the area has been left to deteriorate and it has become a

hollow space, a non-park.[71] Even if the city seems to support preservation, the renovation has been postponed several years. Different interests and the uncertainty of the right direction for its development have resulted in a state of stagnation for the park's planning. The stagnation together with temporary uses, the decay, and vandalism reveal the tangible conflict between the preservation statements and the park's present state.

The Kaisaniemi Park emphasizes historical layers as a key feature for historical urban parks. It also shows that the historical layeredness is a value that can be appreciated only through understanding the history of the park. Without this knowledge, the park may appear as a fragmented collection of elements in need for cohesion and renewal. Therefore, the historic layers and their embedded meanings form the starting point of restoration where the primary goal is to safeguard historical features. Other interests, functional needs, economic interests, or artistic intentions are subordinate to this. International comparisons for Kaisaniemi Park could include the first European publicly funded urban park, Birkenhead Park, in Manchester, Central Park in New York, or Vasaparken in Stockholm, all of which were restored based on an appreciation of the parks' historical identity and careful plans to adopt the required functional changes.[72]

Our research shows how difficult it is to restore a historical urban park with conflicting interests. Historical park worth preservation or a flexible urban space to be renewed for contemporary needs? Historical parks correspond to multiple needs in the city. As the oldest public park of the city, Kaisaniemi Park should be self-evidently regarded as significant cultural heritage to be preserved and not as a place in need for a facelift or divergent short-sighted functions. However, even if safeguarding historic significance is the most important aim, preservation does not imply freezing the park in the past. Change is an inherent part of the park but this does not mean changes which endanger the park's historic values. Therefore, preservation includes managing change in a sustainable way without compromizing the integrity and authenticity of the place. Reconciling change is normally easiest when the historical phases or past functions and new requirements correspond with one another. The question of what kind of change is acceptable does not have an unambiguous answer. Above all, attention must be directed at the reasons behind the change or renewal, the values steering it, and the prospects for cultural heritage to embrace change and still preserve its characteristics. Old, traditional urban parks do not require new clothes or ideologies, but

careful revival, improvement, and repair of their old attire. History connected to urban parks must be understood as an asset and a cultural resource in a changing and growing city.

Post Scriptum. In March 2019, new guidelines for the renovation of Kaisaniemi Park were outlined and the implementation of the project was approved. Hopefully, this will lead to the renovation of the park—finally.

NOTES

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TEMPORARY USE OF VACANT AND ABANDONED URBAN SPACE IN LATIN AMERICA: AN EXPLORATION

Dalia Milián Bernal

ABSTRACT

Temporary use has become an increasingly focal subject in the fields of planning and urban policy. However, research has focused mostly on Europe and the United States, with little attention being given to temporary use in Latin America.

To add relevant cases and broaden the theoretical debate, this article presents an exploration of temporary use in different Latin American cities, from Mexico to Argentina. It charts temporary community centres and ephemeral art galleries that arise in historical abandoned buildings; new urban gardens that flourish over the ruins of monumental modernist housing projects from the 1960s; parklets and pocket parks that appear amongst overlooked deteriorated spaces; and abandoned plots that are transformed into temporary cinemas and playgrounds for children and their families. Furthermore, the article illustrates how these existing environments—often private, inert, and abandoned—are temporarily appropriated as lively spaces open to the public and transformative for cultural and urban practices in Latin American contexts. Finally, the article contextualizes the various examples in theoretical debates on everyday urbanism and do-it-yourself urbanism, showing the unique dimensions and learning points from the Latin American scene.

KEYWORDS

Temporary use, Latin America, everyday urbanism, do-it-yourself urbanism

INTRODUCTION

'Were you inspired by any other project?' I asked.

> [The project] was inspired by the movie . . . . Everything occurs in a small town in Italy, where there is one movie theatre, an emblematic one, which was the only entertainment in town. One day a very popular movie was going to be shown and when the movie theatre was full the doors were closed, leaving outside a lot of people who could not enter, and a riot almost starts. Then, the leading character . . . responsible for projecting the movie . . . sees what is happening outside, uses a mirror as a reflector to project the movie on a building in the plaza across from the cinema, allowing all the people that were left outside to enjoy the movie. It is such a beautiful scene, one of my favourite movies, which inspired the name and the concept of the project.
>
> Excerpt from an interview with the representative of Cinema Paradiso en la Loíza, Puerto Rico, 29 March 2018

Every Sunday, during the years of 2011 to 2013, a vacant plot in the Calle Loíza in San Juan, Puerto Rico, was transformed by a young film director and her sister into an open-air cinema called Cinema Paradiso en la Loíza. The project was received with so much enthusiasm that soon others wanted to take part in the physical and social transformation of this space. It was then that the lethargic walls that confined the plot were animated with artistic murals; the open-air cinema was enhanced with self-made, urban furniture; festivals, like the Plenazo Callejero, loaded the plot with music; the National Circus of Puerto Rico packed the space with acrobats; and the Alternative Book Fair filled the void with written thoughts. The project concluded and the space became vacant again. However, it inspired others to continue the process of actively transforming the city they live in, even if temporarily.

In the last twenty years, temporary use has become an increasingly studied subject in fields related to architecture and urban planning. However, research has focused mostly on Europe and the United States, with little attention being given to temporary use in Latin America. Consequently, the aim of this study is to provide an understanding of how the phenomenon of temporary use is unfolding in the Latin American context.

In this article, the term temporary use is employed to refer to 'temporary activation of vacant and underused land or buildings.'[1] This activation takes the form of a temporary appropriation that deliberately transforms these spaces. I employed qualitative research methods to collect, document, classify, and analyse projects related to temporary use, and contextualized the various examples in the theoretical debates on everyday urbanism and do-it-yourself (DIY) urbanism. Cinema Paradiso en la Loíza represents one of the twenty-four projects of temporary use explored in this study.

In what follows, I will introduce two theoretical debates—do-it-yourself urbanism and everyday urbanism—both of which surround temporary use. I will provide an overview of how temporary use unfolds and is studied in the context of Europe. I will present the historic context of Latin America in order to explain why its cities have high rates of vacant and abandoned urban spaces. I will then introduce the projects as viewed from the lens of their temporary uses. Furthermore, I will discuss the role of vacancy, abandonment, ruination, and private property as it relates to temporary use.

TEMPORARY USE: A GLOBAL OVERVIEW

Temporary use falls under the broader umbrella of so-called temporary urbanism. Although temporary appropriations of urban space are not new to cities, especially not in Latin America, little theory has been generated about this phenomenon. However, Panu Lehtovuori et al.[2] offer a starting point to the study and understanding of temporary urbanism by classifying it into two big groups: do-it-yourself urbanism and everyday urbanism. Temporary use is located in the intersection of both.

Do-It-Yourself Urbanism and Everyday Urbanism

Do-it-yourself urbanism is defined as 'small-scale and creative, unauthorized yet intentionally functional and civic-minded "contributions" or "improvements" to urban spaces'.[3] The activist organizations temporarily appropriating abandoned built or unbuilt spaces are self-organized groups that use very few resources in order to transform the spaces, achieving not only spatial but social transformations as well. It can be argued that these acts of transforming urban space through this truly conscious process are a direct reaction to the perceived flaws of urban planning.

On the other end of the spectrum, everyday urbanism encapsulates space appropriations utilizing the city for festivities, protests, or the improvement

of livelihoods for the individuals who temporarily claim it, such as street vendors. Douglas Kelbaugh[4] refers to these appropriations as 'urban design by default', because these appropriations are not meant to transform the spaces, as is the case with do-it-yourself urbanism, but the transformation of the urban landscape happens 'by default'. This research is particularly interested in projects of temporary use that aim to deliberately transform the vacant or abandoned urban spaces they appropriate.

Relevant to this article is the peculiar everyday urbanism characteristic of 'blurring [the] boundaries between public space and private life'.[5] Suzanne Vallance et al.[6] call for a new definition of 'public space' and for the re-evaluation of 'the political potential of the "public-isation of the private"' since temporary use increasingly blurs the boundaries between private space and public life—this is strongly the case in Latin America.

Temporary Use in Europe

Several books related to temporary urbanism have been written, providing multiple examples of temporary urban spatial interventions.[7] However, the research conducted by the team of Urban Catalyst is one of the most thorough studies focused on temporary use of abandoned built and unbuilt spaces.

Starting their research in Berlin in the early 2000s, the Urban Catalyst research group documented and analysed several projects of temporary use in five different European countries. The study resulted in a set of tools and strategies aimed to help 'catalyse' urban development through temporary use.[8] These strategies have been particularly effective in attracting developers back to cities with high building vacancy rates, such as Berlin, Leipzig, and Amsterdam.[9]

Deeper Analysis of Temporary Use

The research group Urban Catalyst found different kinds of temporary users as well as different types of temporarily appropriated spaces.[10] According to the relationship between temporary users and space, three categories were created: 'reserve/niche' used mainly by refugees, migrants, and dropouts; 'playground/parallel universe' used by part-time activists; and 'incubator' used by start-ups and migrants. Moreover, they analysed the 'effect of temporary uses on the development'[11] of a site and noted that while some temporary uses can have no lasting effect on the site, others help set impulses to further development or consolidation of the site for permanent use. They can coexist with other permanent uses or become dependent on others. Some of

the temporary uses may pioneer urban use of the site and others may be established temporarily while a permanent institution is displaced and replaced. Lehtovuori et al.[12] provide a 'comprehensive analytic framework' to further study the spatial conditions in which temporary uses emerge in the context of Europe and the United States as well as their different goals. In their research, three main typologies of spatial conditions were found: urban central areas, currently underused areas, and areas losing significance. Furthermore, it was analysed how public authorities have incorporated temporary uses in the development of urban areas.

The projects documented in Europe emerged in a context of abandonment produced by the deindustrialization of western European cities, such as Berlin and Amsterdam. In the context of Latin America, vacancy, abandonment, and ruination are prevalent reasons of the temporary use phenomenon as well. The following section will provide a brief historical overview to help explain the causes of vacancy, abandonment, and ruination in Latin American cities.

Vacancy and Abandonment in Latin America

In the last ten years, Latin America has seen the emergence of temporary use projects of abandoned and vacant, built or unbuilt urban spaces. However, Latin American cities have also seen a surge in building vacancy and abandonment, with little research being conducted in order to understand the causes in the broader Latin American context—in Mexico, vacant housing had not been included in censuses until 2010.

In this section, I will provide a brief and general historical overview to help describe some factors that have led to the rise in the number of vacant and abandoned spaces in several Latin American cities. It is worth noting, however, that each project of temporary use I have documented is set in a distinct context, which comprises its own reasons for being in a state of vacancy or abandonment, and a much deeper and detailed discussion about the particular causes of abandonment on each case and country is beyond the scope of this article.

The Rise and Fall of the Social Agenda

From the late fifteenth century to the mid-nineteenth century, Latin American countries were either under Spanish, Portuguese, or French ruling. By 1825, most countries had gained their independence from the old continent.

However, old practices remained, in particular the uneven distribution of extensive areas of land in the hands of a few owners, called *latifundios*.[13] In the early twentieth century, several countries revolted against the unequal land distribution. Mexico was the first country, and arguably the most notorious case, in which the agrarian revolution resulted in a more equitable division and distribution of land to farmers with the creation of the *ejidos*, a communal form of land tenure used for agriculture until its reform in the early 1990s.[14]

From the 1930s to the 1970s, Latin American cities underwent extreme growth, becoming some of the most urbanized regions in the world—in 1970, 57.3 per cent of the population of Latin America lived in cities.[15] Their economic and social progress was the result of the Import Substitution Industrialization (ISI) policies which were put in place to promote internal growth.[16] By the 1950s, Latin America had become 'the leading region among developing countries in terms of social expenditure and coverage'.[17] During this time, governments were strongly involved in urban development, especially regarding workers' housing and in architecture. These social programs are manifested in the monumental and experimental modernist social housing estates that were built throughout the continent.[18]

This social agenda was interrupted in all of Latin America, beginning in Chile, when in 1973 the socialist government of Salvador Allende was overthrown by a military coup. The new military regime of Augusto Pinochet gave way to the liberalization of the economy, with reforms 'advised by US-trained economists', which 'would become commonplace throughout Latin America'.[19] The new economic policies, known today as neoliberalism,[20] transformed the way cities would develop in the years to come.

THE NEOLIBERAL LATIN AMERICAN CITY AND THE PATH TO VACANCY

Neoliberal economic policies have strongly influenced the growth dynamics of Latin American cities, leading, either directly or indirectly, to vacancy and abandonment, particularly in major urban centres. The free-market economy created new urban poles prompting a change from rural-urban to inter-urban migration patterns, thus leaving behind socially and physically fragmented cities.[21]

Chile, Colombia, Peru, and Panama

As previously mentioned, in Latin America, the neoliberal experiment began in Chile, one of the most urbanized countries in the region to this day. The effects of the new economy did not manifest in high vacancy rates (5.8 per cent).[22] A probable explanation is that in the 1990s, Chile's government decided to return to some social projects to expand its 'social expenditure'.[23] However, the initial abandonment of the social welfare state is still visible in its public infrastructure. One of the projects documented in this research revives an abandoned public space located in a modernist social housing complex at the heart of Santiago (see Pasarelas Verdes).

As with Chile, in Colombia (6.22 per cent)[24] and Peru (8.75 per cent)[25] the free-market economy did not result in visible vacancy or abandonment rates. Notwithstanding, these cities attested an evident sociospatial polarization, the growth of informality—in the form of labour and habitat—and an increase in rural and urban violence, particularly in Colombia and Peru. Inequalities and violence promoted extreme urban segregation which translated into the proliferation of 'gated communities' on the periphery of cities and the further fragmentation of the cities into formal and informal dichotomies.

Although the free-market economy has not yet led Panama to high vacancy rates (8.18 per cent),[26] it has influenced Panama City's urban 'hyper-growth' described by geographer Sadoff as 'neoliberalism on drugs'.[27] The skyline of the city, comprised by an extreme conglomeration of modern high-rise buildings, is a deceiving image which disguises Panama's 'high rates of urban poverty, social exclusion, insecurity, and environmental deterioration'.[28]

Argentina

In contrast to the four countries having just been explored, the following three countries—Argentina, Mexico, and Puerto Rico—have some of the most staggeringly high vacancy rates in the region and, as will be discussed, these are closely related to the imposition of the neoliberal agenda. According to Alejandro Portes et al.,[29] 'no other Latin American country witnessed a more fervent implementation of the open-markets model than Argentina'. In 2001, Buenos Aires hit an unemployment rate of 20 per cent.[30] By 2010, almost 24 per cent of the city's housing stock was vacant and the country had a total housing vacancy rate of 18 per cent.[31] The city of Tucumán, where two projects have been documented for this article, has a vacancy rate of 15 per cent.

Despite the high rate of vacancy, the Argentinian State continues to produce and 'commercialize' social housing to counter the country's housing deficit,[32] thus further aggravating the phenomenon of vacancy and abandonment. However, Argentina is not the only country in Latin America applying the free-market model to produce social housing in spite of its high vacancy rates. As will be seen in the following section, the Mexican government too has been very active in the production of social housing, a great part of which remains uninhabited.

Mexico

In the 1990s and within the framework of the North American Free Trade Agreement (NAFTA),[33] the Mexican government modified the law protecting the communal land use of the *ejidos*. Up to 1992, the land of the *ejidos* had been 'non-transferable, unseizable, and inalienable'[34] and 'could not be converted to urban use'.[35] The reform of 1992 loosened these prohibitions and allowed for the privatization of this once communal land.

Under the influence of these neoliberal ideologies, the Mexican government started to intervene less in the production of urban infrastructure and housing, instead granting this endeavour to a few private developers.[36] Moreover, developers profited from the reform of the laws once protecting the *ejidos* by being allowed to buy and develop any land they acquired, regardless of the location. This practice has since been poorly regulated and has created a focus on the production of 'social housing' which is still highly subsidized by the state.

According to Maria Teresa Esquivel Hernández et al.,[37] this has led to the overproduction of cheap and small social housing estates of poor quality located in urban peripheries with most of them lacking proper infrastructure, thereby 'generating urban locations without logic'.[38] Ultimately, the overproduction has surpassed the demand for this type of housing and the vacancy rate has increased. In 2010, approximately 5 million houses in Mexico were vacant.[39]

Vacant and abandoned social housing complexes represent only one typology of the vast and poorly quantified empty urban space in Mexico. Other reasons cause vacant and abandoned spaces as well. Closely related to neoliberalism and globalization, the so-called war on drugs has emptied several cities in the north of the country;[40] the declaration of historical city cores as world heritage has contributed to their abandonment; and natural disasters,

such as earthquakes, have demolished hundreds of buildings over the years, leaving vacant plots where once buildings stood.

Puerto Rico

In Puerto Rico, natural disasters play an important role too. Moreover, the strong neoliberal economic policies of the country have contributed to exacerbate the problem of vacancy and abandonment.

According to the United States Census Bureau, an estimated 330,000 of houses in Puerto Rico were vacant in 2016, representing 21 per cent of its total housing stock.[41] Arguably, migration is the main cause of house vacancy on the island. According to Jorge Duany,[42] by the mid-twentieth century 2 million Puerto Ricans had migrated from the island and the 'proportions of this exodus are staggering considering that the population of Puerto Rico', to this day, has not reached 4 million.

An important fact to keep in mind is that Puerto Rico has never become a sovereign country. After being a colony of Spain, it was invaded in 1898 by the United States and became an 'unincorporated territory' of the country in 1901. Sixteen years later, in 1917, Puerto Rican people were granted U.S. citizenship but did not gain the right to vote in federal nor congressional elections.[43] However, they did gain the right to travel freely from the island to the mainland of the United States—where they gained voting rights for federal elections.

In 1947, the Industrial Incentives Act—also known as 'Operation Bootstrap'—was implemented to industrialize Puerto Rico and to modernise and develop its economy, granting tax exemptions to US corporations. As a result of this, agricultural production declined and unemployment rates increased, thus motivating a strong wave of migration to the United States. In the early 1940s, 96 per cent of the population of Puerto Rico lived on the island. It is estimated that today the majority of Puerto Ricans live on the mainland of the United States.[44]

Furthermore, the dependency of Puerto Rico on the United States has grown since, becoming more evident after a Category 4 hurricane hit and devastated the island in September of 2017.[45] This natural disaster has prompted a new wave of migration[46] and it remains unknown how this phenomenon will contribute to space vacancy in the cities.

It is likely that the number of vacant and abandoned spaces in Latin America will continue to rise, especially if neoliberal urban planning practices are allowed to continue. If neglected, vacant and abandoned spaces may become the ruins of modern society. Nevertheless, they should not be disregarded, because

> [i]n ruins, things usually assigned to specific functions become jumbled, and the absence of any ordering imperative allows for a more unscripted and loose engagement with space and materiality.[47]

In the coming sections, I will present projects that appropriate such vacant and abandoned spaces to transform and activate them with diverse and dynamic temporary uses.

METHODS OF EXPLORATION

Beginning by collecting and documenting projects of temporary use, I produced a case catalogue. I proceeded by organizing and classifying the information to provide a general understanding of the documented projects. Finally, I produced thin descriptions to analyse and define the main temporary uses. The selected cases share two criteria. They are projects of temporary appropriations of vacant and abandoned spaces within urban areas with the aim to deliberately transform the spaces they temporarily claim. Please note that this research does not include other kinds of appropriation of urban space such as squatting or street vending.

Data Collection

To gather the projects' data, I carried out an online questionnaire published in social media and sent via email to acquaintances. I used the word-of-mouth technique, searching participants in social media, in particular on Facebook and in architectural blogs including *Dezeen*, *ArchDaily*, and *Plataforma Arquitectura*. I followed seminars and conferences related to place-making, such as Place-making Latinoamérica 2017, which helped me find activist organizations appropriating vacant and abandoned spaces. I conducted specific internet searches in Spanish, using keywords and key concepts such as 'temporary use', 'temporary appropriations', 'appropriation of abandoned house', 'intervention of abandoned building', and 'art in abandoned building'.

In order to learn more about each case, I analysed news articles and images, followed the projects on social media, in particular on Facebook,

where projects are often well-documented chronologically and in real time. Furthermore, I conducted twelve interviews with key actors involved in the materialization of the projects to whom will be referred to as activists from now on. The layout of the interviews was divided into three main sections and it combined semi-structured questions as well as open questions that led to narrations. The first section was about the interviewee and the organization. The second section was about a particular project. The third section was about the relevance and meaning of the project to society in the way it relates to the specific country and to the broader context of Latin America.

I began the interview by asking for personal information about the interviewee, such as name, age, level of education, and profession. These questions were followed by an open question encouraging the interviewee to narrate stories about the past in order to help the researcher understand the motivations behind the projects and the reasons the organization exists in the first place.

In the second section of the interview, I asked the activist to recount, from the beginning to the end, how the project had unfolded. If necessary, I asked for specific details about the context of the project, such as the type of ownership, physical characteristics of the site, or why the space was vacant or abandoned. I continued asking for specific information about the project, such as dates, how the site had been found, who had participated in materializing the project, and which materials and resources had been used. In addition, I asked which activities had taken place and who had been allowed to participate in those activities. However, most of these questions were answered during the narration.

For the last part of the interview, I asked the activist to talk about the relevance of the project in the context of their specific countries and in the broader Latin American context, such as the role of other organizations, universities and governmental institutions, and what architects and urban planners might learn from these experiences. I ended the interview by asking the activist to be referred to another project related to temporary use. New projects were added to the project catalogue.

These narrations allowed the interviewee to share information about the projects, which went beyond the scope of the more structured questions and thereby helped the researcher understand the projects holistically.

Nevertheless, only specific answers were relevant for this article and further analysis on the narrations is needed to fully understand the phenomenon of temporary use in the context of Latin America.

Data Organization and Classification

After collecting the data, I organized the projects by the names of the activists, the names of the projects, and the year in which the projects took place. I classified the projects by 'spatial contextual characteristics' which include four categories: country of origin, type of space, type of property, and a special spatial characteristic. Subsequently, I produced thin descriptions[48] about each project and analysed how each of them had temporarily used the appropriated space. Table 1 describes the organization, classification, and categorization of the different projects of temporary use.

Country of Origin

This research found twenty-four projects from seven countries in Latin America: Argentina, Chile, Colombia, Mexico, Panama, Peru, and Puerto Rico. Eight projects were located in Puerto Rico, representing the territory with the most temporary appropriations found. I collected data on five projects from Mexico; three projects were found in Colombia as well as in Panama; two in Peru and Argentina; and one in Chile. It is worth noting that the projects charted in Puerto Rico and Mexico were all conducted independently by different groups of activists. In the other cases, the projects were conducted by the same group respectively.

Type of Space

As mentioned earlier, all of the selected projects were temporary appropriations of vacant or abandoned spaces. Hence, these appropriations unfolded within an existing immediate physical context which can be either a built or an unbuilt environment. In the urban context, a 'building' represents the built environment and a 'plot' the unbuilt. These make up the classification of 'type of space'.

From the twenty-four projects analysed, fourteen fall under the category of 'building' and ten under 'plot'. Categorized as 'building' were projects that unfolded inside a constructed space, mostly confined by walls and a roof. However, I included projects that appropriated ruins, such as the projects La Perla in Puerto Rico and Proyecto Aupa in Argentina, into this classification. In both cases, the structural elements of the appropriated building are still

present, although most of the construction is strongly damaged or missing. Another distinctive project classified as a 'building' is Pasarelas Verdes in Chile. The project emerged on an elevated platform which is not confined by walls or a roof. However, this platform was designed and constructed to connect several buildings, thus becoming an added element to the buildings.

The predominant characteristic of the projects classified as 'plot' is the openness of the spaces they claim. These spaces can be large open pieces of land or smaller urban voids, such as remnant spaces between buildings. For example, the project Cinema Paradiso en la Loíza, Puerto Rico, appropriated an urban void of 200 square metres contained in three sides by adjoining buildings while remaining completely open to the street. Alternatively, Huerto Roma Verde, Mexico, covered an open area of approximately 8,000 square metres of land in a highly populated neighbourhood in Mexico City.

Type of Property

I organized the projects according to the type of ownership and paired it with the condition of occupancy: vacant, abandoned, or intestate. Under the classification of 'type of property' projects were categorized as 'public and abandoned', 'private and vacant', or 'private and intestate'.

The category of 'public and abandoned' includes spaces that are owned by the state and have been abandoned for several years. These spaces can be buildings, plots, public squares, or even streets, as was the case in the project Galería Ballindamm which for one year appropriated an unused street in the city of Queretaro, Mexico, transforming it into an art gallery, a café, and an open-air movie theatre once a week. In total, nine projects fall into this category.

The category of 'private and vacant' comprises ten projects that materialized on private property which at the moment of its appropriation was vacant and may have been awaiting future use. Therefore, these spaces are not considered to be in a condition of abandonment. Usually in these cases, the owner of the property is contacted and permission is granted to the activists to use the space under certain agreements.

The category of 'private and intestate' is specific to the Latin American context. This category refers to private property which remains in a legal condition called 'intestate'. Intestate commonly means that the property owner died without leaving a will. In this case, a legal process called intestate

succession will occur. This process varies depending on the country. Usually, the property rights will be transferred—in the following order—to the next of kin, spouse, or to the State. In the case of Puerto Rico, for example, when the property right is transferred to the Estado Libre Asociado de Puerto Rico (The Commonwealth of Puerto Rico), the property rights will automatically be relinquished to the University of Puerto Rico.[49]

Special Spatial Condition

Additionally, several projects share an interesting spatial characteristic. They have either materialized in the plot where a building has been 'demolished' or in a building that is due 'to be demolished'. The projects Huerto Roma Verde, Huerto Romita, and Huerto Tlatelolco in Mexico City, rose on the land left by buildings demolished after a disastrous earthquake shook Mexico City in the year 1985.

Moreover, demolition is the core concept of the three Lavamoatumbá projects in Colombia: Los Rosales, Tsunami, and Galería Fénix. The group Lavamoatumbá, meaning 'we are going to take it down', invites urban artists from all over the world to Bogotá, Colombia, in order to intervene in buildings that will be demolished. The interventions take the form of large graffiti and conceptual artistic installations, becoming a type of alternative urban art gallery. The relevance of demolition as an important characteristic of temporary use will be discussed later in the article. In total, eleven projects share this special spatial condition.

Thin Description and Temporary Uses

After reviewing the information collected, I produced thin descriptions of each project, consisting of a few paragraphs describing what the project is about, who is responsible for the project, where it takes place, how the project is financed, and which resources are used. Moreover, I included the main activities occuring in each case, which helped me determine the new temporary uses added to the vacant or abandoned sites.

FINDINGS

Each project possesses its own attributes and aims. Furthermore, a series of diverse activities can take place even within a single project. However, in accordance with the objectives of each project, I was able to identify the following four main temporary uses: 'art and urban art', 'centres for urban agriculture', 'diverse cultural activities', and 'public amenities'.

Art and Urban Art

In total, six projects fall into the category of 'art and urban art'. These include all three Lavamoatumbá projects in Colombia, accompanied by Casa Tomada in Mexico, and the two Arte Nómada projects in Panama. In all of

Country	Name of activist organization	Interview date	Project name	Project year	Type of space	Type of property	Occupation status	Special spatial condition
Argentina	1319.TreceDiecinueve	23.1.2018	Intervención Construir el	2013	Plot	Private	Intestate	/
			Proyecto Aupa	2017	Building	Private	Vacant	demolished
Chile	Students FAU	x	Pasarelas Verdes	2013 -	Building	Public	Abandoned	/
Colombia	Lavamoatumbá	2.3.2018	Lavamoatumbá-Galería Fénix	2017 -	Building	Private	Vacant	to be demolished
			Lavamoatumbá-Los Rosales	2015	Building	Private	Vacant	to be demolished
			Lavamoatumbá-Tsunami	2015	Building	Private	Vacant	to be demolished
Mexico	Caudal	22.3.2018	Casa Tomada	2016 - 2017	Building	Private	Vacant	/
	Derivé Lab	9.3.2018	Galería Ballindamm	2013 - 2014	Plot	Public	Abandoned	/
	La Cuadra	x	Huerto Roma Verde	2012 -	Plot	Public	Abandoned	demolished
	Sembradores Urbanos A.C.	x	Huerto Romita	2006 -	Plot	Public	Abandoned	demolished
	Cultiva Ciudad	15.3.2018	Huerto Tlatelolco	2012 -	Plot	Public	Abandoned	demolished
Panama	Arte Nómada	2.3.2018	Arte Nómada I	2016	Building	Private	Vacant	/
			Arte Nómada II	2017	Building	Private	Vacant	/
			Temporal	2016 - 2017	Building	Private	Vacant	/
Peru	Nomena/Lateral	x	Intervención en Miraflores	2015	Building	Private	Vacant	to be demolished
	Ocupa tu Calle	25.4.2018	Plazoleta de la Integración	2016 -	Plot	Public	Abandoned	/
Puerto Rico	Casa Taft 169	6.3.2018	Casa Taft 169	2013 -	Building	Private	Intestate	/
	Michelle Malloy Campos	29.3.2018	Cinema Paradiso en la Loiza	2011 - 2013	Plot	Private	Vacant	demolished
	La Gestoría	Communication via email	La Gestoría	2017	Building	Public	Abandoned	/
	Taller Creando sin Encargos	23.2.2018	La Perla	2013	Building	Public	Abandoned	/
			Parada del Almendro	2017 -	Plot	Private	Intestate	demolished
	La Maraña	21.2.2018	Parque Estrella	2015 -	Plot	Public	Abandoned	/
	Brigada Puerta de Tierra	27.4.2018	Plaza Vivero	2015 -	Plot	Private	Intestate	demolished
			Infanzón	2015 -	Building	Private	Intestate	/

Table 1. Organization and classification of temporary use projects from Latin American countries.

these examples, vacant buildings were used to exhibit art and urban art from emerging groups and/or amateur artists. In some cases, the buildings themselves even became an essential element of the artistic object. Moreover, all of the projects have been categorized as 'building' and as being of 'private and vacant' property. Figure 1 is an example of the 'art and urban art' category.

Figure 1. Photograph of the interior of the building appropriated for the project Lavamoatumbá-Tsunami, Bogotá, Colombia (2015). Image courtesy of Lavamoatumbá.

These projects/events were mostly transient, but the duration varied from one weekend to a month, a year, or even open ends. In addition, in most cases the project was comprised of several smaller temporary events taking place on different sites. Some projects were site-specific with temporary events taking place within them. Although the main objective of the projects/events was to exhibit or even sell art, these exhibitions were accompanied by other activities, such as workshops and concerts accessible to the general public and free of charge. Moreover, as one interviewee pointed out, these 'art galleries' became a platform for other under-represented artistic groups, such as culinary artists, musicians, and feminist writers.

Centres for Urban Agriculture

This category is represented by Huerto Roma Verde, Huerto Romita, and Huerto Tlatelolco in Mexico, as well as Plaza Vivero in Puerto Rico. A *huerto* is defined by the Real Academia Española as a 'piece of land or plot where vegetables, legumes and fruit trees are planted'.[50] However, since the size of the land of each project varies considerably, all projects have slightly different particular objectives, ranging from only providing workshops related to urban agriculture and permaculture, as is the case of Huerto Romita—only 80 square metres—to being extremely productive *huertos* that can

Figure 2. Aerial image of Huerto Tlatelolco in Mexico City, Mexico (2012). Image courtesy of Cultiva Ciudad.

sell its produce to restaurants and rent growing beds to others interested. Figure 2 is an example of a productive centre of urban agriculture.

These four projects have been categorized as 'plot' and most of them fall under the category of 'public and abandoned' property, with the exception of Plaza Vivero where the activists took over a 'private and intestate' 'plot' to transform it into a meeting point for the youth of the community of Puerta de Tierra in San Juan, Puerto Rico. In this space, they grow medicinal plants and take care of the precarious, mostly abandoned built environment of the area.

Huerto Roma Verde, Huerto Romita, and Huerto Tlatelolco share a distinct characteristic. They stand on the land left from demolished buildings following the earthquake of 1985. These lands are publicly owned, but have never been reclaimed and were therefore found in a state of abandonment.

Figure 3. Photograph of Proyecto Aupa, Tucumán, Argentina (2017). Image courtesy of 1319. TreceDiecinueve.

Diverse Cultural Activities

The seven projects that fall under the category of 'diverse cultural activities' are spatially diverse as well. Therefore, some projects have been classified as 'plot' while other have been classified as 'building'. Some of them intervene private properties and others intervene public properties. Moreover, all of them have different time frames and are directed at different audiences. All projects are related in so far as that they have housed different, mostly cultural, activities open to the public and free of charge.

Proyecto Aupa and La Perla are primarily focused on the needs of children and youths. In Tucumán, Argentina, Proyecto Aupa (Figure 3) transformed a soon-to-be demolished building into a playground where children and their parents could do activities together. In Puerto Rico, La Perla was studied through the eyes of the children living there. They would later help transform a 'modern ruin' into a community centre for the children.

Cinema Paradiso en la Loíza in Puerto Rico initially transformed a 'private and vacant' 'plot' into an outdoor cinema. However, over the years, diverse cultural activities have taken place there, such as a performance of the National Circus of Puerto Rico and the hosting of the Alternative Book Fair. Temporal in Panama City was a project that appropriated a 'private and vacant' 'building', transforming it into what the activists called an 'art bar', where for five months art workshops, live music performances, art exhibitions, and screenings in a cinema took place. La Gestoría in Puerto Rico was a project that appropriated a 'public and abandoned' unfinished 'building' belonging to the University of Puerto Rico, transforming it into a cinema or an open mic space. Ever since a devastating hurricane hit the city in September of 2017, it has been serving as a community dining area for those in need on various occasions.

Casa Taft 169 was a project that appropriated a 'private and intestate' 'building' located in the neighbourhood of Santurce in San Juan, Puerto Rico. With the help of neighbours, the space was transformed by the activists into a self-organized civic centre and has since become the community's meeting point for the discussion of matters related to the built and social environment of Santurce. After Hurricane Maria, Casa Taft 169 has been providing space for children to attend classes and for storage of goods to be distributed later on to those in need.

Public Amenities

These projects are not all located precisely in spaces considered 'plot' nor are they all public property. It has been quite challenging to define their classification. The meaning of the term 'public amenity' is the function of the projects as a substitute for public service which should be provided by the State in the first place. Figure 4 is an example of a project categorized as public amenity.

Parque Estrella, Plazoleta de la Integración, Galería Ballindamm, and Pasarelas Verdes are all projects transforming abandoned public spaces. After being unused for over forty years and becoming a garbage dump, Parque Estrella, a public park in San Juan, Puerto Rico, was cleaned and transformed by the community into a kind of public square where different activities can be held. In the city of Lima in Peru, the Plazoleta de la Integración was revived by the community using colorful, self-built urban furniture made out of recycled wooden pallets. The project Galería Ballindamm in Mexico appropriated an unused street for one year and transformed it into a multifunctional public space, exhibiting not only art and movies, but ocassionaly becoming a temporary café as well. Pasarelas Verdes is a project that reopened the access to the elevated platforms of the modernist housing complex Remodelación

Figure 4. Photograph of Parada del Almendro, San Juan, Puerto Rico (2017). Image courtesy of Taller Creando sin Encargos.

San Borja in the centre of Santiago de Chile in Chile, organizing a series of temporary actions to bring life to the platforms, such as a project called Musica+Plantas (Music+Plants) in which anyone can visit the walkways, bring a plant, and help clean while listening to live music.

The front yard of a 'building' in the neighbourhood of Miraflores in Lima in Peru was transformed into a public parklet for three months. The intervention, Intervención en Miraflores, appropriated a building that is of 'private and vacant' property and waiting 'to be demolished'.

Intervención Construir el Vacío and Parada del Almendro (Figure 4) are two very different projects which are both located on a 'plot' of 'private and intestate' property. Intervención Construir el Vacío in Argentina was an appropriation of a private plot used by the neighbours as a public space, primarily to walk their dogs. The space was transformed into something resembling a public plaza filled with urban furniture and different activities, ranging from film screenings to a fashion show. Parada del Almendro in Puerto Rico is a bus stop designed and built on a 'plot' of 'private and intestate' property to substitute the new non-functional bus stops, which are part of a controversial project called Paseo Puerta de Tierra, a 'waterfront infrastructure project and commercial development'.[51] As one of the interviewees told me, 'the new bus stops (in Paseo Puerta de Tierra) do not provide shade nor a place to sit and one bus stop was placed in front of the doors of a store which could afterwards no longer be opened'.[52]

Time Frames, Duration

All of the studied projects have different temporalities. Some lasted only one day, as is the case with Intervención Construir el Vacío, while the project Proyecto Aupa lasted ten days. The two Arte Nómada projects are a three-day event recurring every year. Lavamoatumbá-Los Rosales and Lavamoatumbá-Tsunami were opened to the public for approximately one month and no longer exist, as is the case with La Perla. The parklet of Intervención en Miraflores lasted for three months. Temporal lasted five months. Casa Tomada and Galería Ballindamm appropriated their respective spaces for one year which were later used for several more transient events. Pasarelas Verdes is a recurring temporary appropriation/event. Lavamoatumbá-Galería Fénix has no time limit so far, as is the case with Casa Taft 169, Parada del Almendro, Plaza Vivero, and Plazoleta de la Intervención.

Although Huerto Romita, Huerto Roma Verda, and Huerto Tlatelolco have no time limit, one interviewee mentioned that due to the fact that the projects appropriate public property, their duration is dependent on how incoming governments react to the projects and whether or not they might be inclined to use the space for other purposes.

Resources

It is worth noting that the projects are self-organized and get little support, if any, from the municipalities and governmental agencies. Therefore, they materialize with very few resources, volunteers being the most important one. In order to transform these spaces, which have not been used or taken care of for a long time, cleaning squads made up of volunteers, are organized. Materials are donated by private companies or by members of the community. For example, a pharmacy donated the cameras used for a scavenger hunt taking place in La Perla in order to study the area. In the case of Casa Taft 169, the neighbours donated paint to transform the façade as well as plants to add to the small *huerto*. Pasarelas Verdes periodically organizes cleaning squads which take place alongside concerts and vegetable planting sessions for the elevated *huerto*.

In some cases, more unorthodox methods are used in order to finance elements for the projects. The three women architects, founders, and members of the collective Taller Creando sin Encargos organized a brunch with dishes prepared by themselves and for which they charged ten dollars in order to buy some of the materials used in the project La Perla. The two projects presented in this article conducted by these women architects and activists, La Perla and Parada del Almendro, were organized within the framework of the Workshop de Arqutiectura Collectiva for which participants pay a fee that is used to cover some of the costs of the projects.

The first project realized by the group 1319.TreceDiecinueve, Intervención Construir el Vacío, was financed with their personal income. However, in 2016 they applied to and were awarded funding from the Bernard van Leer Foundation for Proyecto Aupa. Casa Taft 169 got support from the Museum of Contemporary Art in order to finance art courses for the community.

As mentioned before, most of these spaces are privately owned, which means that special synergies take place between the owners of the spaces and the activists who transform them. In the case of Cinema Paradiso en la Loíza, the owner lent the space to the activists in exchange for it being taken

care of and cleaned occasionally. However, after several months, the owner started charging a monthly fee of one hundred dollars. 1319.TreceDiecinueve made a contract with the real estate company owning the building used to house Proyecto Aupa. If the spaces are publicly owned, usually permission is asked from the municipality in order to use the space. However, the appropriation by some projects started illegally and was later legalized, as is the case with Casa Taft 169.

DISCUSSION

The collapse of the welfare state and the implementation of neoliberal economic policies have strongly influenced urban development in Latin America and have exacerbated the phenomenon of vacancy and abandonment in different cities. Yet, vacancy and abandonment are of vital importance to temporary use because, under these conditions, different sociospatial transformations can be experimented with and other forms of urban public life can be expressed.

As the study shows, all the projects documented create a different kind of public space, which is active, designed, and built by the community. Nevertheless, two thirds of the projects take place on private property. One reason can be attributed to the fact that governments have surrendered urban development and the production of urban infrastructure to private markets. Focused on economic profits, the free-market city is not interested in producing spaces for the common good. Thus, not surprisingly, new public space has not been at the forefront of urban development. It can be argued then that Latin American cities present a deficit of public space alongside its housing deficit.

Another reason which explains the unfolding of temporary use in private properties is that public space in Latin America continues to be a contentious political space. Public space is produced with an autocratic vision suppressing a more diverse interpretation of public space created by the community. As the projects documented prove, citizens want to be participants in the transformation of the built environment around them. Cinema Paradiso en la Loíza is a good example of different communities in the city who found a venue where they could shape new experiences and imagine a different city in the private, vacant plot of Loíza Street.

Temporary use in Latin America aims at creating a different form of public urban life which mirrors diverse points of view. It is similar to the aims of

the majority of projects of temporary use documented in research taking place in Europe. One important difference, however, is that while temporary use in Latin America continues to be a marginal and poorly understood phenomenon, in Europe it has gained recognition by scholars, planners, and governments, where cities with high vacancy rates have implemented temporary use as a strategy to reinvigorate them. Notwithstanding, in some cases, temporary use has become part of the toolkit of the free-market city and it has been used—or misused—to increase land value in underdeveloped neighbourhoods rather than to enlarge the repertoire of different forms of co-created public space, at times gentrifying neighbourhoods.

Research on temporary use in Latin America, North America, and Europe indicate that cities need to provide outlets for diverse uses and other forms of expression of urban public life which go beyond the confinements of private property, vacant spaces, and abandoned spaces. In order to achieve this goal, the pervasive protection of vacant and abandoned property—private and public—must be challenged, and in an era of global warming, the neoliberal production of the city must be strongly contested. Moreover, the use of the existing building stock should be considered and a new social agenda must be put into place in order to return, particularly to Latin America, the values of the common use of the city.

CONCLUSION

I began this exploration by contextualizing temporary use within the theoretical debates of do-it-yourself urbanism and everyday urbanism. The projects that have been presented in this article deliberately transform vacant and abandoned urban spaces, a transformation consciously undertaken by citizens rather than governmental institutions. Due to this conscious process of transformation, temporary use is more closely related to do-it-yourself urbanism than everyday urbanism. While everyday urbanism also represents citizen-led transformations of urban space, these actions are not deliberate. Of interest in this article when it comes to everyday urbanism, however, is the observation that it tends to insert private life into public space. As has been discussed in the previous section, the majority of the projects documented in this article depict a similar yet opposite phenomena in which private properties accommodate public life.

Subsequently, I reviewed how the phenomenon of temporary use is unfolding and has been approached in Europe. I then presented a brief historical analy-

sis of Latin America in order to explain the reasons for the many vacant and abandoned urban spaces in the cities of the region. In a final step, I introduced the twenty-four projects that were collected, documented, and analysed.

Information gathered from the analysed projects revealed that vacant and abandoned spaces can be activated with a wide range of uses and creatively transformed using only few resources. Private spaces provide a niche for experimental projects from the outset. It was observed that vacancy and abandonment are an absolutely necessary condition which allows for new and innovative temporary uses, and also shows that the city has become intangible and is in need of outlets for diverse uses and other forms of public space. The support of temporary uses can help provide those outlets.

Further research is needed to gain insight on the motivations behind these projects and to identify the relationship between temporary uses and their physical, social, and economic contexts. Understanding the processes that bring these projects to life can provide insight into other forms of architecture and city planning.

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MEDIATING 'TEMPORARY USE' OF URBAN SPACE: ACCOUNTS OF SELECTED PRACTITIONERS

Hella Hernberg

ABSTRACT

'Temporary use' of vacant space is becoming increasingly recognized as an approach towards more flexible, experimental, and resource-efficient urban development and as a channel for local initiatives and participation. In recent research, the importance of 'mediators' for temporary use has been identified but not explored in greater detail. The mediation of temporary use can be seen as an emerging approach and practice for architects, designers, or urban planners. This work expands beyond the material or spatial aspects of traditional architects' or planners' work, as it includes more sociopolitical dimensions, such as handling complex relations and collaborations among various actor groups.

This article is based on four qualitative interviews of selected established and experienced temporary use mediators in European cities: Ghent, Bremen, Nantes, and Riga. To elucidate the everyday work, emerging competencies, and challenges found in the emerging area of temporary use mediation, this article presents descriptive accounts of temporary use mediators' work. These accounts identify some relevant contexts and conditions of mediation work as well as illustrate the work and roles of the selected mediators and their relations between main stakeholder groups. In addition, based on a thematic analysis of the interviews, the article discusses three core themes in temporary use mediation: managing and building relationships among actors; bridging conflicts; and disrupting dominant traditions, values, and norms in urban planning and development. Linking these themes to relevant theoretical concepts and discourses, the article further points out potential areas for future research.

KEYWORDS

Temporary use of space, urban planning, participatory design, mediation

INTRODUCTION

'Temporary use' (TU) of vacant space is an emerging response to contemporary cities' struggles with climate change, demographic and infrastructural change, economic challenges, and participation. TU is becoming increasingly recognized as a flexible, experimental, resilient, and resource-efficient approach to urban development. Temporary use is understood as a 'temporary activation of vacant or underused land or buildings with no immediate development demand'.[1] Thus, it enables the use of spaces that have lost their former function and wait for decisions affecting their future.[2] While the duration of TU can vary from months to several years, it is characterized as an in-between stage in development.[3] As an emerging approach, TU challenges traditional processes in urban planning and development, which have been criticized as too concerned with long-term perspectives and permanence.[4] Furthermore, as a channel for local initiatives and participation, TU is understood as a valuable way to empower actors that are traditionally excluded from urban planning decisions.[5] For planners, architects, and designers, TU opens up new kinds of work practices and approaches, which expand beyond the material or spatial. These new approaches include more sociopolitical dimensions, such as the 'mediation' of complex relations, collaborations, and competing interests among actors.[6]

In recent research, the importance of 'mediators' in temporary use has been identified but not explored in greater detail.[7] This article starts to address part of this gap by presenting accounts of selected established TU mediators in European cities: 1) Neighbourhood managers in the City of Ghent (Belgium), 2) ZwischenZeitZentrale (ZZZ) Bremen (Germany), 3) SAMOA, Nantes (France), and 4) Free Riga (Latvia). The guiding research questions for this article are: How do practitioners account for their experience of mediating TU? What are some relevant contexts and conditions for their work? How do mediators handle relations and address potential conflicts among different stakeholder groups?

The article is part of my doctoral research, which explores the sociopolitical and material nature of TU mediation as an emerging area for architects/designers, which extends beyond traditional competencies related to the design of physical objects, spaces, or urban plans.[8] TU mediation also has the potential to challenge the traditional power relations and expert roles in urban planning and to open up ways for more adaptable and inclusive processes of development.[9] In order to understand the socially and politically complex dimensions in TU mediation work, some discussions in adjacent

fields, such as participatory design (PD) and sustainability transitions, are relevant. For example, discussions on 'infrastructuring' in PD conceptualize the mediatory role of design in an open-ended process of building long-term collaboration among a diversity of actors.[10] The concept of 'agonism' in PD further helps to advance an understanding of aspects of disagreement and confrontation within TU.[11] Furthermore, recent discussions on intermediaries in sustainability transitions elaborates the bridging role of intermediary actors between emerging and more stabilized actors.[12] Architectural discussions on agency, power, and expertise are also relevant for understanding TU mediator roles within urban planning.[13] These discussions provide a background for the empirical study presented in this article.

Methods and Selection

This article presents descriptive accounts of TU mediators' work based on four in-depth (one- to two-hour-long) qualitative semi-structured expert interviews[14] with professional practitioners from four European TU mediating organizations. The article further discusses the results of a thematic analysis of the interviews, in which a 'cutting and sorting' method was used to identify themes[15] and concludes with potential directions for future research.

Within the context of my doctoral research, TU mediation is pursued through two main methodologies: 'Research through Design' (RtD)[16] and qualitative research. The RtD approach is based on my own professional practice focused on mediating temporary use,[17] from which I derive different orientations, materials, accounts of my own practice, and conceptual dimensions. The scope of the qualitative interview study presented in this article has been informed by orientations from my RtD practice and crafted with the aim to understand common and different struggles between mediating practitioners, especially regarding the social and political dimensions.

The written accounts and quotations in this article were presented to the interviewees for possible clarification via email. In addition, the level of anonymity used in this article was discussed with the interviewees at the beginning of their respective interview and confirmed after having read the written accounts.

As mediation of TU is an emerging field, there are not many established professional practitioners in this area. The mediating organizations selected for the study are partners of REFILL, which is a leading network focusing on

such practices in Europe,[18] and in which I have been a local expert and advisor. Through REFILL, I selected key articulate and experienced practitioners who have carried out a number of projects, including failures and successes, over more than five years. The selection comes from cities mainly in Northern Europe, in which there are some inevitable differences and specificities in terms of politics, governance, history, and economic situation. Thus, this study does not rely on a direct comparison of work contexts and conditions. Nevertheless, with the practitioners' experience as the unit of study and analysis, the selection enables some common denominators. Through elaborated qualitative accounts of practitioners, which are accounted for as situated and embodied, the aim is to shed light on the characteristics of their work practices and point out relevant areas for further research.

ACCOUNTS OF MEDIATORS IN PRACTICE

I met with mediators from four different TU mediating organizations in March 2018 in Ghent, Belgium, where the mediators took part in the final conference of the REFILL EU project.[19] Acknowledging my own role as both practitioner and researcher, I did not attempt neutrality but considered the interviews partly as peer-to-peer conversations. Three of the interviews took place in local cafes and one at the mediators' office. The interviews were conducted in English, which was not the native language of any of the interviewees, nor of myself. All of the interviews followed a similar protocol flexibly (see Appendix 1).

In this section, I present descriptive accounts of how the selected TU mediators experienced their work and roles. The section starts with a short overview describing the different contexts and backgrounds and follows with four individual accounts. In each account, I discuss the mediators' role and main tasks, their relations including formal arrangements and potential conflicts with main stakeholder groups, and the related skills and motivations behind their work.

Overview

The selection of mediating agencies comes from cities in mainly northern parts of Europe: Ghent (BE), Bremen (DE), Nantes (FR), and Riga (LV). There are some differences and specificities in terms of politics, governance, history, and economic situation, but also contextual similarities. In both Bremen and Nantes, temporary use is related to the loss of traditional industries, namely the closing down of shipyards.[20] Today, both cities already have a rather

long-term experience with temporary use: the city of Bremen employed their first temporary use agency for one district in 2007, followed by the founding of ZZZ as an outsourced temporary use agency for the whole of Bremen in 2009.[21] In Nantes, the history of temporary use dates back to 2003, when the organization SAMOA was founded to be in charge of the urban development of the former port area Île de Nantes.[22] Similarly, Ghent has had experience with temporary use for over ten years, and the first TU cases were connected to the urban renewal of former industrial sites.[23] Riga, on the other hand, had been the fastest growing capital of the EU until it suffered a severe economic crisis in 2008, which led to large-scale vacancy and freezing of the property markets. The TU mediating NGO Free Riga was founded in 2013 and has evolved from citizen activism towards an independent professional service for private property owners.

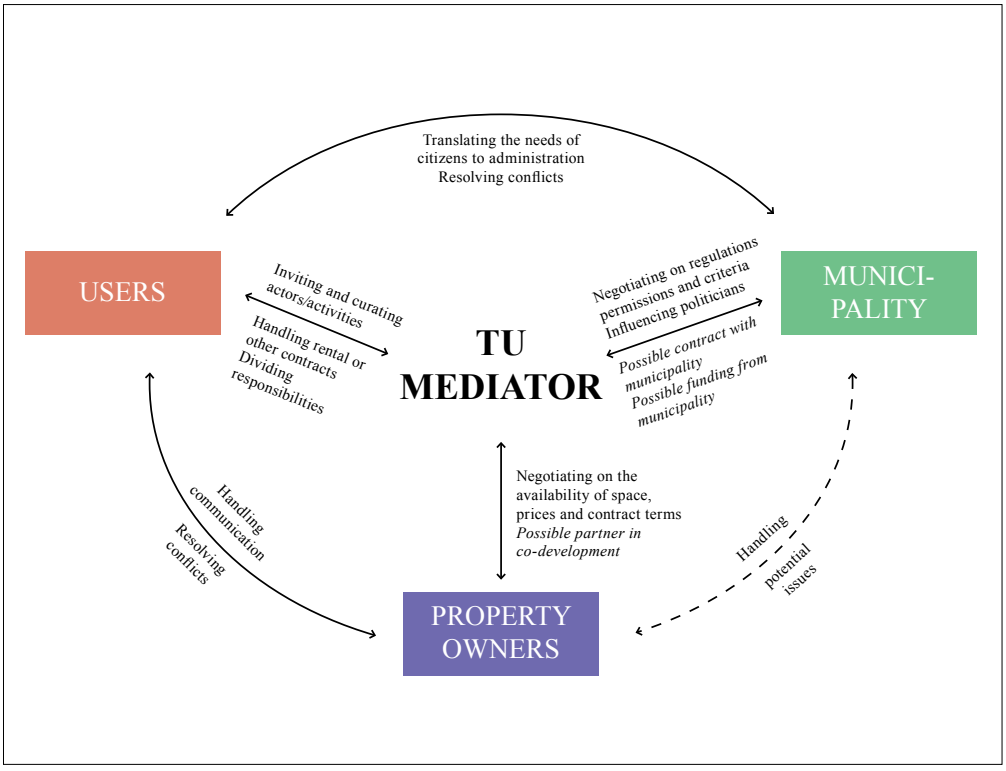

Figure 1. An overview of generic TU mediator tasks and affiliations in relation to the stakeholder groups, based on the four interviews.

As an overview, I have listed some characteristics of the four mediating practices and their contexts in the table below. It is worth mentioning the differences in the mediating agencies' relation to the municipality and related funding: the agencies' positions vary from being located inside a municipal department (Ghent) to having contract and either full (Bremen) or partial (Nantes) funding from the respective municipality, to being an entirely private organization (Riga). As a result, the mediating agencies' roles and relations to the most important stakeholder parties are somewhat different.

Despite contextual differences, there are also commonalities in the selected mediators' work and tasks (see Appendix 2). Their core tasks related to TU mediation consist of handling the relations, collaborations, contracts, responsibilities, and potential conflicts between main stakeholders. The mediators also curate users and facilitate collaboration among them. Despite their varying relations with the municipality, connections to administration and policymakers are important in order to be able to negotiate on various legal, financial, and administration questions regarding temporary use. Figure 1 simplifies and summarizes the generic tasks of the mediators as an overview, while the accounts below reveal more rich details of individual mediators' work.

Interview with Two Neighbourhood Managers from Ghent (BE)
I met with two neighbourhood managers (NMs), who work as civil servants at the municipal Policy Participation Unit in Ghent. The interview took place at their office on the morning of a workday. We were rather tight on time and the meeting took about one hour. One of the interviewees had to leave earlier for another meeting, after which we continued with one neighbourhood manager.

The interviewees work in a team of fifteen neighbourhood managers, who take care of twenty-five different neighbourhoods in Ghent. The Policy Participation unit, which was established in 2003, is placed under the direct responsibility of the mayor, and it has an official mandate on mediation between citizens, other municipal departments, and politicians.[24] Temporary use is linked to their three main activities: information, participation, and co-creation.

Mediator Role and Tasks
The main task of the NMs, as described by the interviewees, is to know their neighbourhood: to engage in dialogue with the users (residents, businesses, and other organizations) of different neighbourhoods, and to detect needs within the neighbourhood. They further described how it is important to

be reachable and in contact with the citizens in both formal and informal ways: 'We go into the neighbourhood, we participate in initiatives that people organize or other organizations . . . also walks in the neighbourhood, drinks.' According to the interviewees, the temporary use of available vacant spaces is one of their ways to answer the needs discovered, as well as to strengthen the identity of neighbourhoods.

Relations with Users

According to the interviewees, a vacant building or site may be opened to neighbourhood initiatives to match needs identified in a neighbourhood. If the location is public and central rather than residential, then the initiatives are selected through an open call, based on the proposal's relevance for the neighbourhood or city. Match-making events can also be organized to further support collaboration among potential users.

> Our colleague organized this match-making event where everybody who had a proposition, or wanted to do something in *Nest*, could meet up with each other, they could pitch their proposition to each other and to the city. And they also, we also wanted them to, make alliances.

If a TU project is organized in a residential area, the interviewees pointed out that project organizers should come from the same neighbourhood. For citizen initiatives, the vacant space may be offered for free through a 'management contract', where necessary rules, responsibilities, and the intended duration of the TU are stated. The users take care of running costs such as water, heating, or electricity. If the user is a business, then a small rent is charged.

Finding a balance between different desires and treating people fairly was a challenge for the interviewees. For example, they found it essential to avoid unfair competition between temporary users and other businesses and services in the area, while trying to stimulate creativity at the same time.

> They [the temporary users] do get some sort of income and that is allowed. But they cannot get rich by receiving a free building from the city. So, it's a difficult balance. Because then you have other bars in the neighbourhood who say, 'How much rent are they paying? Do they have all the licenses?'

In Ghent, the intended ending of a TU project is explicitly agreed on in the beginning, according to the interviewees. However, projects may at times

continue much longer than expected in the beginning, which can sometimes be a challenge. Some temporary users can get tired of continuing a voluntary project that was intended for the short term, while other users may insist on a permanent or long-term contract.

Relations to Owners

According to the interviewees, temporary use projects in Ghent have been organized in both publicly and privately owned buildings in the city. If the owners are private, then the NMs cannot handle the rental contracts or calls for initiatives, but they can have an advisory role. For example, they can give advice to a private owner and help to communicate with the temporary users to make sure the activities fit the neighbourhood and don't harm the neighbours. In cases where the temporary users were not from the same neighbourhood, the interviewees had experienced conflicts where they had to step in to find a resolution.

> My role in that one was to go and talk to the organizers, we got the police involved and other services from the city, [to] not to tell them that they couldn't do it anymore but to explain that they were in a neighbourhood, and they had to take into account the neighbours and the people living there . . . Then I also went to the private owner and said, 'There are some troubles, can you go and talk to those guys?', and I went to talk to them as well. And then with the police and other services, we put the neighbours together with the organizers, to talk . . . Then we came to some agreements.

Relations to Administration

While the NMs' relations with citizens are essential, relations to administration also play a big role. The interviewees described complex negotiations within the administration and across municipal departments, for example on the interpretation of regulations in order to adapt spaces for a new use. Their repeated examples of a 'grey zone' indicate particular flexibility towards regulations in Ghent. According to the interviewees, there are strategic goals promoting TU as a creative and experimental activity, which may override certain building regulations. Yet, exemptions to regulations have to be negotiated and explicitly agreed on with the responsible civil servants.

> I think we don't have regulations and we sometimes do . . . things so it's in the grey zone. It's the go-between . . .

> And then we started looking for other, creative solutions and laws and licenses . . . and a lot of city departments and services came together, and we were thinking about how can we keep them there, in the grey zone. But it is a grey zone. But that is what we want as a city, that people can experiment. If you only go by the strict rules, you cannot do temporary use or things like that.

Skills and Motivations

Based on the interview, the NMs of Ghent come from diverse backgrounds. The interviewees are from criminology and linguistics, while other NMs are from communication, political sciences, architecture, bioengineering, and so on. 'We have all been cast quite well in our neighbourhoods. This is a fit. It's a great job,' explained one of the interviewees.

The NMs' accounts further revealed a strong experience of their role in between the actors. They described their role as 'brokers', but also as 'glue' and the 'middle of a sandwich' within the administration and politicians, as well as between users and the municipality.

> That is our–my broker role as well to say 'I know the neighbours are complaining, but there are maybe 10 people complaining, there are 200 people not complaining. Let's see what we can do to . . .', so the mediator role in these kinds of projects is important. So, we . . . have our network with citizens in our neighbourhood with the partners, with the organizations, but also within the City of Ghent administration, we need our network of colleagues who we can call . . . And the policymakers [are] also our network. We know all the aldermen, we have to know them and have to be able to contact them.

> She feels like a sandwich between the city administration, she feels like she's the middle of a sandwich where you have the citizens and then the city administration and the policymakers and we are in between.

Interview with a Founding Member of ZwischenZeitZentrale Bremen (GE)

The meeting with a founding member of ZwischenZeitZentrale Bremen (ZZZ) took place in a cafe at one of the temporary use sites in Ghent. The interview took an hour and a half.

The ZwischenZeitZentrale Bremen (ZZZ) is a temporary use agency commissioned and funded by the City of Bremen, Germany. The ZZZ was founded in 2009 after a public tender for a city-wide temporary use agency. Its roots are in the architecture collective AAA (Autonomous Architecture Atelier), which was founded in 2006 by three architecture / urban planning students with a passion to organize participatory projects in public space.[25] The interviewee is one of the founders of both AAA and ZZZ.

Mediator Role and Tasks

According to the interviewee, the ZZZ acts as a mediator renting vacant spaces in Bremen from various owners to temporary users. At the same time, they work in daily contact with the city administration and politicians. The interviewee's account of the ZZZ's work focused on their relation to the users of the temporary space: his essential goals were related to connecting people, finding synergies, and creating 'platforms'. Furthermore, he saw the mediator's role as a 'filter', translating ideas from the users to the administration.

> We're the filter of the active people. . . . Our passion is to bring people in new ways together.

> We go everywhere and we are everywhere, and people can call us in the night. We are reachable, it's very very important.

Relations with Users

The interviewee explained that the ZZZ uses various channels to reach out to people of different ages and social groups when a new TU project starts. Open invitations can be sent through various media channels (social media, newspapers, TV), followed by a tour of the site and a workshop to find out about people's ideas. He mentioned different means to connect to the surrounding neighbourhood of a TU site, such as urban walks, workshops, and open door events.

The ZZZ aims, according to the interviewee, to make spaces affordable for diverse groups and to encourage public activities in TU projects. Tools for keeping prices low include renting very small spaces (starting from a copy room of 1.5 m^2), encouraging users to share spaces, and offering short-term contracts. At first, the temporary users are usually offered three-month rental contracts, which also make the spaces accessible to users who simply want to test their idea and move out, or who don't have the funds to plan for the longer

term. Other users may consolidate, and the TU project itself may last several years. The interviewee pointed out that, after the first formal steps, the mediator should 'give up control' and encourage users to take more responsibility.

Relations to Owners

The ZZZ rents empty spaces from owners to users at their own risk. As their work is funded by the city, they don't charge a commission from rents, the interviewee explained.

> Because if we do so [charge a commission], there's no trust, cause then the people said, 'hey aha, aha, you pay this very low rent and then I must pay, this is . . . huh?' . . . It's equal rights for the users and us, and we're not the broker or the real-estate firm to earn money. Ok, it's a lot of work, but we're paid by the city.

According to the interviewee, the ZZZ's first TU projects were organized in publicly owned spaces. Nine years later, in 2018, half of their owner partners were private and the owners had started taking the initiative to approach ZZZ. However, there have been difficulties in convincing private owners to rent out vacant spaces. Because of the bookkeeping and bank crediting system, keeping spaces unused can be more profitable for owners than renting them below market rents. In order to convince private owners of the potentials of TU, the interviewee had argued for benefits such as enhancing the security of the building, raising the positive media coverage, and getting potential buyers' interest through TU activities.

However, the interviewee explained that collaboration with public property owners is not always simple either.

> They gave us space but not so much . . . Yes. Crazy. Because there are many many public spaces empty. But . . . the real estate firm, the outsourced real estate firm . . . said to us, 'Okay, you support squatters.' Then they cut the co-operation. They didn't give us real estate, buildings, or housing. And this is difficult.

Relations to Administration

The interviewee further described the role of ZZZ as 'informal administration' as they are commissioned by the municipality. He explained that ZZZ is in daily contact with the administration and has monthly meetings with

a steering group, including members of six municipal departments. In the steering group meetings, the ZZZ mediates the ideas and aims of citizens to the administration and politicians, and they discuss potential risks and problems, laws and safety issues. The interviewee further mentioned different kinds of contractual arrangements, which help to enable temporary use within the German bureaucracy and legislation. He explained how working with the administration is not only about understanding real estate, but about 'soft skills'; it's a complex task of navigating among the different aims of six responsible departments as well as politicians.

> There are different targets and different aims . . . Every department has different politicians [in] power. . . . And when we want to change something, it's [a] very . . . strange situation, but you cannot do something well if you don't have the helping hands from politics, so . . . it's necessary to have people from politics and also from the administration level.

Skills and Motivations

The ZZZ consists of a 'diverse team' with different personalities and capabilities. According to the interviewee, this is essential in order to be able to communicate and negotiate with different kinds of stakeholders and the public. While the educational background of the founders of ZZZ is in architecture, urban planning, and cultural studies, the interviewee emphasized that they are 'not normal architects or urban planners'. However, he found traditional architect's skills, such as reading plans, understanding spatial structures, and spaces, necessary. Nevertheless, 'soft skills' required for dealing with the complexity of social situations seemed essential for his work.

The interviewee described his job as 'urban curator', 'dreamer', 'connector', and 'passionful urbanist'. He emphasized that his goal is to bring diversity to the city, open up alternatives for commercially driven urban development, discover people's ideas, and bring people together. He cited 'trust to the people and trust to the owner' as the most important principle in his work. The search for alternatives was clear in how he described what the ZZZ is *not*: they are 'not real-estate brokers', 'not a normal office rental firm', and 'not top-down'.

Interview with a Head of Projects at SAMOA, Nantes (FR)

I met with a 'head of projects' of the urban development agency SAMOA at a cafe in Ghent, in the afternoon between her official meetings in Ghent and

traveling back to France. The meeting was the longest of the four and took almost two hours.

The SAMOA (Société d'Aménagement de la Métropole Ouest Atlantique / West Atlantic Metropolitan Redevelopment Agency) is a 'Local Public Company' in charge of urban planning and development of Île de Nantes, a former industrial harbor site. Samoa works on publicly validated aims with both public and private funding.[26] The interviewee described Samoa's model of urban development as follows: Samoa buys the land, makes plans, and builds infrastructure, and later resells the land or building rights to private constructors. While waiting for permanent development to take place and before reselling the property, Samoa takes the opportunity of time windows of five to ten years and rents available buildings for temporary use.

Mediator Role and Tasks

The interviewee works as one of six heads of projects at Samoa. She described that she is in charge of construction services, under which temporary use is included, as well as Île de Nantes Expérimentations, which are participatory experiments testing different uses on public spaces. Regarding temporary use, her work involves planning and carrying out renovations to adapt buildings for temporary use, negotiating on regulatory and other issues requiring public validation, taking care of financial balances, organizing the selection process of tenants, and handling rental contracts.

Relations with Users

The interviewee recalled how TU was initiated at Île de Nantes: In 2003, the newly founded Samoa occupied the empty warehouses of the train manufacturer Alstom as their own office and started seeking others to share the large building. The location had a bad reputation at the time. Thus, Samoa looked for new neighbours through their own networks, mainly within creative fields, and Alstom became a cluster of creative and cultural industries. Later, other TU projects at Île de Nantes were curated as clusters of related fields.

As rental contracts in France are very rigid and there are few options to choose from, the interviewee explained that Samoa's solution was to utilize a 'precarious occupation agreement', which is meant for a maximum twenty-three-month duration.[27] This contract type allows both parties to end the contract 'quickly and safely' without long notice times or fines, which are typical for other French contract types. Thus, this contract allows space for

uncertainty. Despite the twenty-three-month limit, the interviewee mentioned that TU projects had eventually lasted even up to ten years. In some cases, the activities had consolidated at a new location afterward.

> The context is that we are not sure what the urbanization is going to be, so during this time of [the] project, we have the opportunity to use those spaces, but it could be for three months, two months, one year, five years, twelve years, we don't know. And the fact that we don't know give[s] us the right to have a derogation of these classical contracts.

The interviewee further described her responsibilities related to citizen participation, which are linked to TU. She is in charge of Île de Nantes Expérimentations, which is a process of co-programming and prototyping new uses for public spaces or vacant buildings together with citizens. Being involved in participation and planning simultaneously has made it important to draw the limits of her and Samoa's responsibilities.

> We will again be a little bit clearer on what we are able to do and what not. Naturally, if somebody again speaks about social bonding and so, we won't make like, 'I don't wanna hear that', but we will get the link to the dedicated services to participate [in] it. So we are, more and more, learning that we are kind of just facilitators on lots of things.

Issues of Ownership

Being the owner of vacant buildings during TU, Samoa can directly benefit from TU and take learning from one project to another. According to the interviewee, TU has enabled Samoa to keep buildings waiting for redevelopment, even with low rents, while not having to worry about squatters or pay for security. However, it has been hard work to keep prices low for TU. She explained that recently their profit expectations from the city had changed, which will put pressure on pricing and may eventually affect the variety of possible user types within TU.

Relations to Administration

Within fifteen years, Samoa has become, in the interviewee's words, an 'expert on how to occupy old vacant places with the French rules'. Strict building regulations had caused a lot of technical difficulty in her projects, particularly in accessibility and fire security. Therefore, creative problem solving and negotiation skills were essential in handing regulations to enable TU.

The interviewee vividly illustrated various complexities in Samoa's relation to administration and politicians. Regular meetings with *the gouvernance* are held on different levels and different intervals. Public validation is required for both strategic level decisions and small details. She pointed out that Samoa has a political mandate to do things in unorthodox ways, but this approach is not always welcomed in administration.

> Often, it's complicated because they [the administration] have the feeling that we are not doing [it] the classical way, and that's true. . . . Sometimes they are attracted to the fact that it's not as usual . . . and sometimes they're just [like], 'No, I just don't care'. . . . And we say, 'But you pay us to make things different and to have a specific ambiance and image on the island' . . . and so it can last years. Yes, no, yes, no, until . . . [we] have a politic[ian] decide it. But do you realize that you have to go to politics to choose the lock of a bike!

Despite the frustration and workload, the interviewee felt that the results had been fruitful: participatory experimentation and temporary use together had contributed to new ways of learning together and making some public services think differently.

> Transitional uses are pretexts, often, to . . . both side[s], learning to . . . oblige some services to get into a new way of thinking, and that's probably the most interesting thing in those kinds of projects.

Skills and Motivations

Two-thirds of Samoa's employees, including the interviewee, are specialized in urban planning and development, and one third in economic development. With experience from various kinds of architectural work, the interviewee seemed proud of her current work but unhappy about the workload. 'It's exhausting. . . . it's a little bit too much for now.'

Interview with a Founder of Free Riga (LV)

The interview with a founding member of Free Riga took place at a cafe in the historical center of Ghent. The interviewee was busy with a work deadline, but we found time for a discussion of almost an hour and a half.

Free Riga is an independent NGO, which offers a 'house guardian' service to owners of vacant properties in the Latvian capital. The interviewee described

how Free Riga had evolved since 2013 from a voluntary project towards a professional 'guardian' service, which is still developing. The start push for Free Riga came in 2013 through the 'Occupy me' campaign, in which stickers were put on empty buildings in order to raise concern for the high vacancy rates before Riga's year as European Capital of Culture.[28]

Mediator Role and Tasks

The interviewee told me that he had been responsible for framing Free Riga's business model as a 'guardian service' for property owners. He described that Free Riga offers to maintain spaces and reduce costs for property owners, as well as to curate public, socially engaged initiatives that will make the properties more attractive and potentially raise their value. The users are offered affordable space for their initiatives. In return, they take part in small-scale renovation or maintenance work. The interviewee further explained that Free Riga covers different taxes and costs for the owner and also handles communication and contracts between users and owners.

Relations to Users

The users of Free Riga's spaces are called 'residents'. According to the interviewee, they pay a 'membership fee' instead of 'rent' in order to emphasize the sense of community. The fee equals roughly half of market rents. The interviewee mentioned that the residents are responsible for organizing socially active projects or events in the neighbourhood, but that they may also live or work in the spaces. The residents also take part in small renovations and maintenance work in return for the cheap membership. The interviewee described how Free Riga had gradually learned to draw the limits of their 'guardian' role and to divide responsibilities, which are now explicated in contracts. He pointed out that as guardians, Free Riga aims to 'curate, then step back', gradually encouraging the residents to take more responsibility or even to become guardians themselves.

> That was learning from the third phase that . . . more clear responsibilities, that it's less work, less management for guardians, that the community takes part [in] the management, self-manages part of the things that they can do . . . and also that the community selects itself that it kind of fills some roles immediately.

The residents of Free Riga are invited through open calls via social media and Free Riga's other networks. The interviewee described how they had tested

various facilitation methods for the selection process over the years. One of their recent methods, where applicants demo their project ideas together, encourages the applicants to find partners, and thus the community can self-select itself.

An important aspect of mediation, for the interviewee, is to handle communication between the users and owners, who generally don't 'speak the same language'. He also mentioned various experiences of conflict between the owner, user, and other parties. For example, there had been disagreement on suitable activities, or users not taking care of their responsibilities of maintenance work. Some users had experienced troublesome encounters with existing residents of deprived neighbourhoods, and thus mediation was important in order to advocate new activities to existing residents. As a mediator, Free Riga had also developed useful connections with authorities and the police in order to resolve conflicts and problems.

> A bus with Swiss activists from Basel, squatter[s], social activists came to [the] opening of this *Pushkin 11, P11* house . . . and then the local Russian inhabitants [were] like, 'Uh, I read what this is [triggered by a rainbow-coloured PACE flag], stay away from my children.' You know, mediating the inhabitants [so] that they understand that it's actually nice, police coming because [the] bus, the Swiss activists' bus, was standing in the middle of . . . this very public field . . . So, police coming, then having to go to municipality to this eastern district commissioner, politically also responsible, [and] explain to him, he says 'Ok very nice what you're doing, we're are letting you go because you have [such] good projects'. He knew me from before.

Relations to Owners

Free Riga mainly collaborates with private property owners, without public funding. The interviewee explained that in the economic context of Riga, there are smaller-scale property owners who are short of funds and concerned about the costs of vacancy, and thus interested in alternative solutions for their property.

According to the interviewee, a contract with Free Riga offers the property owners significant cost reductions. The owners can get a 90 per cent reduction of property tax through the public benefit status of Free Riga. The interviewee explained that property taxes for 'degraded buildings' have recently become very high in Riga, which has put a lot of pressure on property owners.[29]

Through their experiences in temporary use, the members of Free Riga have become aware of the potential of TU to raise property value. Being concerned that temporary users also should profit from the fruits of their labour, the interviewee has recently been prototyping a 'co-development' deal with some owners.

> We are interested in not being just people who gentrify and [the] owner gets millions but share somehow part of this value.

In a co-development contract of five or more years, as explained by the interviewee, Free Riga profiles new activities with the owner and develops ideas for the future, while also earning a share of the increased value. The other option for owners is a 'temporary use' deal, in which the owner gets tax reductions but takes more risk regarding content, as Free Riga selects activities based on their own interest.

Relations to Administration

Free Riga doesn't have a contract or close relations with the administration, nor do they receive public funding, as do the other mediators in this study. The interviewee explained that in post-Soviet society, 'getting space from public office is cumbersome and slow' and the public sector has 'limited resources to subsidize civic society'. However, he had some fruitful experiences of collaborating with the public administration. For example, he described having 'co-discovered', with the property department's director, the existing policy of tax reductions for properties that are leased for public benefit organizations. This had a significant financial impact on Free Riga.

Based on the interview, the administration context of Latvia and Riga seems looser in terms of regulations as compared to the three other cities in this study. For example, the interviewee explained the technical installations in their buildings:

> . . . paying some technician to get water through [the] neighbouring house into this house, through [the] old heating pipe actually . . . State is not controlling so much.

Skills and Motivations

The professional background of the interviewee is in business and civic activism. He described that Free Riga combines the backgrounds of its

founders in business, art/culture, and facilitation of collaboration. Although their service is directed to property owners, the interviewee proclaimed his passion towards 'how people can create the city'. He emphasized that the social aim of Free Riga is to provide cheap space that allows more time for people to pursue their passions and meaningful projects with a community. In this way, he wants to contribute to a 'freer city'.

COMMON THEMES IN TU MEDIATION WORK

The accounts of four European temporary use mediators presented in the previous section highlighted the interviewees' experiences of their work and role as mediator, their relations between main stakeholder groups as well as skills and motivations behind their work. This section will further discuss common themes that were derived from a thematic analysis of the interviews.

A thematic analysis of the interviews was carried out by applying a 'cutting and sorting' method.[30] In the thematic analysis, relevant parts were selected from the transcripts, cut out, and grouped. Based on keywords from the excerpts, preliminary categories were created. After several rounds of rearranging the categories in relation to each other, twelve subthemes were derived. The subthemes were explained in writing based on the included excerpts and keywords. Finally, the twelve subthemes were regrouped under three main themes.

The three chosen main themes highlight common issues and concerns in TU mediation work, focusing on the sociopolitical dimensions. Based on the analysis, the common tasks, concerns, and issues of the mediation work include managing and building relationships among actors and actor groups as well as bridging conflicts. Furthermore, it is characteristic of TU mediation to challenge and disrupt dominant traditions, values, and norms in urban planning and development. These main themes will be discussed below, with relevant sub-themes marked in italics.

TU Mediation as Managing and Building Relationships among Actors

Managing relationships and issues among stakeholders became evident as an important aspect of mediation work based on the interviews. This work included handling contracts, balancing demands, resolving conflicts, negotiating on contradicting interests, and finding compromises among actors and actor groups. For example, the mediator was needed to communicate between parties who didn't 'speak the same language', such as the owner and users

(Riga). Some of the interviewees saw themselves as mediators of citizens' ideas and needs towards policymakers (Bremen, Ghent). Furthermore, many of the interviewees had a role in community building or curating the user community, as well as facilitating collaboration and finding synergies among actors.

Building *trust* was mentioned as essential in mediation work. Many interviewees found it particularly important to build trust towards the temporary users or citizens by giving them some freedom and responsibility within limits (Ghent, Bremen, Riga). Earning trust from stakeholder parties was considered a prerequisite for the mediators' credibility and negotiation power. Conversely, a lack of trust between the owner and mediator had made TU difficult (Bremen).

Some of the interviewees described a feeling of *in-betweenness*, either as a connector of parties or as personally squeezed in between, as was illustrated by the metaphors of 'filter' (Bremen), 'glue', and 'in between the sandwich' (Ghent).

TU Mediation as Bridging Conflicts

The mediators in this study described experiences of *conflicts* as well as contradicting interests or values between stakeholder groups. There is an interesting contradiction about the need for trust mentioned above, within inherently 'agonistic' social conditions.[31]

Conflict situations were mentioned between the temporary users and the residents of the surrounding neighbourhood (Riga, Ghent), between the mediator and the owner (Bremen), between the users and the owner (Riga), and between the mediator and the public administration (Nantes, Bremen). The reasons behind the conflicts were often related to differences in understanding, contradicting views and values, as well as different traditions and cultures of the different parties. Typical were also contradictions between the aims of one group and the limits of existing regulations, policies, or financial arrangements.

In terms of resolving conflicts, several approaches were described, such as putting the conflict parties together to talk (Ghent), a mediator negotiating with the responsible parties (Riga), a mediator balancing the demands of the different parties (Ghent), or long negotiations within the administration (Nantes). Furthermore, it was mentioned that through initial disagreements, the TU approach had in some cases contributed to new learning and understanding among stakeholder parties (Nantes).

TU Mediation as Disrupting and Challenging Dominant Traditions, Values, and Norms

As an emerging and experimental approach, temporary use is understood to challenge traditional longer-term processes[32] and typical power relations in urban planning and development.[33] The TU mediators interviewed in this study illustrated challenges that emerge in practice as a result of introducing unconventional ways of operating and of bringing new actors into a field dominated by rigid frameworks and values of the urban administration and the real-estate business.

In some of the accounts in this study, the TU mediator roles were somewhat identified in relation to TU as an *unconventional or experimental approach* (Nantes, Ghent). This gave the mediator a certain mandate on negotiations on experimental policies or exemptions from regulations. However, the mandate given by politicians was challenged within the existing frameworks of legislation and real-estate business as well as the everyday of municipal administration (Nantes, Bremen). Thus, achieving unconventional solutions required a lot of groundwork and technical understanding along with creativity and negotiation skills.

On a practical level, the mediators' experiences showed how there is often a need to *renegotiate building regulations, economic frameworks, contracts, and policies* in order to enable TU. Some interviewees had been influential in terms of discovering existing policies to benefit TU (Riga), contributing to flexibility regarding regulations (Ghent, Bremen), or finding creative solutions to operate within strict legislation (Nantes). Ghent had a particularly flexible approach to regulations with their agreements on the 'grey zone' and the 'pop-up regulation', allowing exemptions from regulations for three months. While the interviewee from Bremen reported difficulties in matching TU with the traditional business logic of property development, interviewees from Nantes and Riga had developed alternative business strategies in the benefit of TU.

The *temporal uncertainty* of TU brings further challenges and risks. Most interviewees dealt with them by making clear agreements about the intended duration of TU, while leaving room for open-endedness and change. The 'precarious occupation agreement' (Nantes) and the '12-month permission paper' (Bremen) were examples of adapting to the existing legal framework in uncertain conditions. In practice, these tools seemed to applied loosely with an open ending despite an initially clearly defined timeline.

The interviews further provided examples of how TU can disrupt typical urban planning processes by *giving temporary users more power to influence long-term development*. For example, the co-development model of Free Riga tested how temporary users could become partners with the owner in developing long-term solutions and earning part of the increased property value. In Ghent, the NMs tried to ensure the impact of TU on long-term development so that successful activities would be continued even after TU itself ends.

DISCUSSION AND CONCLUSIONS

This article has elucidated the practice and reality of temporary use mediation work through accounts of selected TU mediators as well as identified themes that reflect common issues and concerns in their work. This qualitative study provides evidence that mediation is necessary for TU processes. As previous research lacks both nuanced practical-level understanding and theoretical conceptualizations of TU mediation work, this article has started approaching this gap through a qualitative study of four TU mediators' work.

Through rich, qualitative accounts, this study has illustrated how TU mediation extends beyond the traditional competence of architects, planners, or real-estate agents. Besides work on spatial, architectural, contractual, or legal matters, the sociopolitical dimensions of the work are complex and fundamental. The complexity of the work is a result of operating between diverse stakeholder groups, which often have contradicting interests, values, and traditions. These complexities also reflect how TU, as an emerging practice, challenges institutional and economic frameworks at the larger scale of urban planning, development, and administration.

The previous section presented three themes derived from a thematic analysis, which highlight common issues and concerns in TU mediation work. Below, I build on those themes to indicate possible avenues for future research, which link the themes to potentially relevant theoretical concepts and discourses.

- **TU Mediation as a New Work Area for Architects, Planners, or Designers**
  This study has elucidated the sociopolitical dynamics of relation-building and management among stakeholder groups. They emerge in TU as fundamental and complex, yet they extend beyond the core competencies of architects or planners. In order to understand, arti-

culate, and practise such relationship management, other adjacent fields such as participatory design (PD) and sustainability transitions offer some relevant conceptualizations on the collaborative and dialogic nature of such work[34] and the work of 'intermediaries' bridging between actors in situations involving communication problems and different interests or culture.[35] Also relevant for conceptualizing the new role of architects as TU mediators are discussions of agency, power, and expertise in recent architecture discourse.[36]

- **Agonism and Conflict in TU Mediation**
  In this study, mediators reported conflicts in TU mediation at the scale of stakeholder relationships. The examples from this study provided evidence that TU has the capacity to open up spaces of contestation and expose ongoing conflicts between competing value systems.[37] Building on 'agonism' as discussed in PD[38] and related concepts such as 'adversarial design',[39] TU mediation could further develop ways to open up spaces of contestation and to bridge conflicts within urban planning and land use.

- **TU Mediation as Catalyzing Transitions towards More Sustainable Urban Planning and Development**
  This study provided practical examples of how TU as an emerging practice can disrupt existing dominant frameworks and traditions within urban planning, development, and administration. There is a need to further understand and support the role of TU mediation in catalyzing these transitions. Recent literature on intermediaries in sustainability transitions provides useful discussions of intermediaries as key catalysts that speed up change towards more sustainable sociotechnical systems by linking emerging and mainstream actors as well as activities, skills, and resources.[40]

Within the emerging area of TU mediation, this article has started addressing a gap in research through descriptive accounts of TU mediation work. In addition, the article has planted seeds for future work with a discussion on themes highlighting core issues and concerns, as well as considerations of future research. Through a better understanding of mediation in TU, it can be possible to influence larger scale transitions in urban planning and land use, thus contributing to more adaptive, resource-efficient, and participatory approaches in urban development.

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APPENDIX 1
Interview Guide

Research question: What is the role of the mediator?
Q1. Where is the mediator needed? What are the core tasks and capabilities needed?
Q2. What are the limits of the mediator's agency?
Q3. How does the mediator address relations, conflicts, contracts, etc., among different stakeholder groups?

Interview questions:
Background questions (20 min.)
About the organization and the mediator role
How did you end up working there? What's your job description?
What are the **tasks, responsibilities** of the mediator?
Who do you work with? Who are the main stakeholders?

Thematic questions

1. **Owners** (20 min.)
   How do you handle relations between owners and users?
   What kind of contracts? Terms, responsibilities, etc.?
   How do you motivate owners to open up spaces for temporary use?
   Have there been any conflicts or disagreement regarding owners?

2. **Users** (20 min.)
   How do you work with users? Are there any curator activities involved? What kind of support/services do the users need?
   Do users take specific responsibilities compared to traditional tenancy agreements?
   How do the users benefit from temporary use?
   Have there been any conflicts or disagreement?

3. **Public sector (authorities)** (20 min.)
   How is your organization connected to the public sector?
   How much regular contact do you have to the administration?
   What kind of mandate do you have?
   Have you had issues with regulations?
   Do you get public funding or other support?
   Why does the municipality (not) support temporary use?

APPENDIX 2

Mediating Organisation	Organization Type	Funding	Ownership of Property for TU	Contracts and Rental Arrangements	Level of Rent	Specific Instruments / Policies	Responsibilities	TU Activity Types	Professional Background
Neighbourhood managers, Ghent	Public sector (Policy participation unit)	Public	Mostly public, some private	'Management contract' or rent, free or low cost	Free or low rent plus running costs	Fund for TU, 'pop-up regulation' for < 3 months	Neighbourhood-level participation, mediating TU	Diverse neighbourhood projects or small business	Diverse
ZZZ Bremen	Private, commissioned by the city	Public	both private and public	Various, rent or 'loan agreement'	Varies	'permission paper' for TU < 12 months	Mediating TU	Diverse: cultural, business, socially responsible	Architecture, Urban planning
SAMOA, Nantes	'Local Public Company'	50% public, 50% private	SAMOA owns the properties	'Precarious occupation agreement'	50–70% of market rent	'Île de Nantes Expérimentation'	Urban planning + economic development, mediating TU, participation	Creative and cultural industries, start-ups, media	Architecture, Urban planning, Economy
Free Riga	NGO	Private	Mostly private	'Membership' with users, 'collaboration' or 'co-development' contract with owners	Membership is 50% of market rent + some maintenance work	90% reduction of property tax for public benefit activity	'House guardian', 'co-development'	'Public benefit activities', including art, culture, and neighbourhood projects	Business, Art, Culture

Table 1. An overview of the characteristics and contexts of the mediation practices in this study.

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