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Growth target as a barrier to knowledge integration and provision of alternative scenarios in urban planning

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Abstract. The complex task of urban planning requires multidisciplinary knowledge co-creation. Due to the urgency of climate change mitigation and the threats environmental changes pose to urban areas, effective knowledge integration is ever more important to understand the systemic effects of planning solutions. The findings of an interview study conducted in 2020-2021 suggest that many interrelated challenges and barriers hindering the co-creative knowledge production in planning practice exist. One barrier seems to be the time constraints the planners struggle with, which is connected to the strategic and political planning targets emphasising growth. In this paper, this concern is further explored: How have the planning targets of the City of Helsinki been formulated in three of the publicly available strategies and policy papers guiding urban development? Is the pressure to grow overriding the qualitative aims set for achieving the highly anticipated sustainability transformation? Conclusions indicate a need for an open discussion concerning the planning targets of cities: Is the target to produce detailed plans in high numbers, or to aim for the best quality in the urban living environment and to meet the ambitious sustainability goals?

1. Introduction

Urban planning poses a complex and wicked task requiring effective knowledge integration. Furthermore, planning often involves conflicting interests and uncertainties regarding the future impacts of decisions and planning solutions. [1][2][3][4] It has only become more demanding due to the urgency of climate change mitigation and the threats environmental changes pose to urban areas [5].

One of the strategic themes of the Sanna Marin's Government in Finland, is centred on the target of the country becoming carbon neutral by 2035 [6]. While acknowledging the regional differences, no sector should be exempt from cutting carbon emissions, and the cities should lead the way. Most of the actions indicated by the programme do not involve city planning directly but have implications to it, such as promoting combustion-free district heating solutions and electric car infrastructure. Also, high emphasis is placed on the building and construction industry and its material flows, and on improving energy efficiency of the existing built environment. Another strong signal for urban planning in the government's programme is the negative stance for development on forest land, for which fees for changes to land use have been suggested [7].

In response to these nationally set goals and following the global aims to mitigate climate change, many cities in Finland have created their own strategies. These include reaching carbon neutrality in a relatively tight schedule (within next ten years) as well as many other targets to create the necessary transition towards more sustainable built environment. Cities deal with the complexity of the task by



ensuring that the planning organisations provide for the different knowledge-needs. In the capital city of Finland, Helsinki, the Urban Environment Division consists of four departments: *Land use and city structure*; *Buildings and public areas*; *Services and permits*; and *Sector administration* which are then further divided into several sectoral units. Also, a team working on urban planning and development includes (architect) planners, landscape architects, transport planners and environmental planners. Other expertise within the network of a planning team varies but involves specialised expertise within the city organisation as well as external consultants.

Furthermore, in many cities, organisational changes and other actions have been made to encourage cross-sectional dialogue and collaboration. Yet, a persistent concern is that the knowledge production remains siloed and fails in effective knowledge integration. An interview study conducted in the six biggest cities in Finland (measured by population) suggests that the key concerns obstructing effective knowledge co-creation include time constraints caused by a substantial workload which is linked with planning targets emphasising growth [8]. Collaborative knowledge creation requires time and effort, and as such, can be seen as a waste of time when already experiencing difficulties to complete the daily tasks [9].

A question is raised, whether ambitious qualitative aims set for urban development such as the climate goals remain secondary to the aims of growth as suggested by the interview study. In this paper, the planning targets of the City of Helsinki are explored to enhance understanding on the matter.

2. Methodology

This paper is based on an interview study conducted in 2020-21 in six cities in Finland: Helsinki, Espoo, Tampere, Vantaa, Oulu, and Turku. These cities represent the most urbanised areas in Finland, and thus, it was presumed the planning questions and challenges are fairly similar to each other. Altogether 35 planners and other specialists working in these city organisations and producing knowledge for urban planning took part in the study. From all cities a landscape architect, an architect (planner), an environmental planner and a transport planner were included. In addition, four specialists working with climate questions or in strategic development were interviewed.

The key aim of the interviews was to find out what kind of collaborative practices, or tools of knowledge integration the interviewees apply in their daily work, and when communicating, sharing, and producing knowledge. The interviews were semi-structured, and the participants received a frame of questions beforehand. The interviews were carried out in Finnish, and online using either Zoom or Teams. The discussions were recorded and transcribed. The analysis of the data was based on qualitative content analysis [10].

As a result, many barriers to effective knowledge co-creation could be identified. These include 1) city organisations suffer from chronic lack of resources; 2) personal working preferences and motivation to work collaboratively vary; and 3) data and knowledge materials are dispersed, unintegrated, and difficult to manage or even find. Furthermore, the observations suggested that the strategic and political planning targets emphasising urban growth may hinder the application of collaborative practices and effective knowledge integration. For this paper, this concern was further explored by examining three publicly available strategies and policy papers guiding the urban development of the City of Helsinki, namely Helsinki City Strategy 2021-2025; Helsinki City Plan 2050; and Carbon-neutral Helsinki 2035 Action Plan¹.

3. Contradictory strategies: Providing for fast growth or ensuring transformation towards a carbon neutral city?

For the purposes of this study, three key strategy and policy papers of Helsinki were explored to find out what are the outspoken planning aims guiding decision-making regarding urban development in

¹ In August 2022, Helsinki City council approved a new plan towards carbon-neutrality replacing the one analysed in this paper. In the new plan, actions have been reduced to prioritise the most effective actions, and the goal to achieve carbon neutrality has been set to 2030.

Helsinki: 1) Helsinki City Strategy 2021-2025: A Place of Growth; 2) Helsinki City Plan 2050; and 3) Carbon-neutral Helsinki 2035 Action Plan.

The first of these papers, The Helsinki City Strategy [11], is a document in which the priorities for the city council term are named, and, as such, it is assessed and reformulated every four years. The Helsinki City Plan [12], on the other hand, is a planning document framing the City Strategy by providing the basic directions for urban planning and land use. The latest City Plan has been approved in 2016 and it provides a strategic development scenario reaching until 2050. The third document, the Action plan towards carbon-neutrality [13], is focused on GHG emissions reduction with a target of Helsinki becoming carbon neutral by 2035. Other documents, policy papers and material giving guidelines and directions to planning and urban development exist as well, but these three were considered to provide a good overall representation on the current policies and strategies implemented in the City of Helsinki. The key observations from the documents are further elaborated next.

3.1. Growth of the city as a primary strategy

In the Helsinki City Plan as well as in the City Strategy, the key objective seems to be to provide for urban growth even if many other aims have been named as well. The latest Helsinki City Plan was approved in 2016 and it sets the strategic directions for the land use and city development for the next 30 years. The plan presents a scenario in which Helsinki would have up to 860,000 inhabitants² and 560,000 jobs in 2050, which means circa 30 % growth from 2020 to 2050. Issues demanding negotiation or otherwise more precise investigation are meant to be solved in detailed planning.

The City Strategy of Helsinki is the guiding document for all activities of the city corresponding to the four-year mayoral and city council cycle. In the latest strategy for the years 2021-2025, growth has been given such a strong role that the document has been named *A place of growth*. Already in the preface, population growth has been emphasised as the premise for economic, social, cultural, and even ecological goals, and it is noted that the “*global economy favors cities that are growing*”. Similarly, in a document summarising the key themes of the City Plan, growth has been highlighted by the title: *Helsinki City Plan 2050: Helsinki is growing sustainably* [14].

The population forecast included in the Strategy [15] presents only one future, in which population continues to grow in a linear way. In this paper, no alternatives are discussed, and it is not clarified if and how alternative forecasts have been studied. Also, references to studies or rationales behind the linear growth have not been provided in the Strategy; it is only mentioned that the forecast is based on data from Statistics Finland, and it has been compiled by the City of Helsinki. Furthermore, the probabilities of the realization of the forecast are not discussed, or, for instance, if any future events (predictable or sudden) might affect on its course. The Strategy provides a perception, that the linear growth is inevitable, and will continue unchallenged. However, reports on the studies concerning growth scenarios do exist and in these three alternatives have been explored: slow, medium paced and fast growth [16][17]. From these, Helsinki has chosen the scenario of fast growth as a base of its strategy. Interestingly, for the first time in at least 70 years, Helsinki lost population to migration by over 4,000 people in 2021 [18].

Strong emphasis has also been placed on climate change mitigation with the target of achieving carbon neutrality by 2030. It is an ambitious aim and, thus, it is stated that the “*city decision-makers will consider the impact of all of their decisions from a climate perspective, regardless of the kind of operations in question*” [19]. Also in the City Plan, it has been noted that Helsinki will “*ensure that it operates in line with the principles of sustainable development*” [20]. At the time of approving the Plan in 2016, the aim for carbon neutrality was by 2050 which has already been taken down to 2035 [21] and will be further tightened to 2030 [22]. How exactly the challenge of linking the extensive growth with

² Helsinki is home to approx. 657,000 inhabitants. In the capital region consisting of the cities of Helsinki, Espoo and Vantaa, there lives almost 1.3M people.

the aim of becoming a carbon neutral city within the next 8 years is not clarified in neither of the documents.

‘Sustainable growth’ seems to be an overarching goal in the City Plan but very little is said what is meant by it. It has been linked with long term planning [23], sustainable modes of transport, good urban life, and diverse housing supply. A dense and compact urban structure is justified, for instance, by providing better possibilities for the use of sustainable modes of transport and by the implementation of more sustainable energy supply systems. However, urban consumption patterns are not addressed at all in the plan. How consumption habits change in relation to urban structure and, also, what is the energy systems effect on overall emission reduction have been debated [24][25], and the issue of densification is not simple from the point of view of sustainability.

According to the City Strategy, the most treasured natural areas are to be saved from zoning, and a few of these have been specifically named. The aim is that “*all building and traffic projects will seek to preserve as many trees and greenery as possible*” [26]. In the City Plan as well, the green areas, city forests and cultural environments are considered as strengths, and the aim is to maintain these [27]. The forecasted growth of the city has been allocated so that approximately one third would be expanding the central city areas and one third would be realized by densifying existing structures as infill construction. Materializing the last third would mean developing new areas such as the old Malmi airfield site which could fit up to 25,000 new inhabitants according to the plan. By densifying existing urban structure and allocating development by the new transversal rail lines the aim is to safeguard the green areas from fragmentation.

The Carbon-neutral Helsinki 2035 Action Plan aims to provide more concrete means and actions required to achieve Helsinki’s climate objectives. In the plan, a total of 147 actions are recorded. There are 30 actions concerning traffic and transport, and 57 actions concerning construction [28]. A website has been developed for the following and assessing these actions [29].

The emissions caused by the construction of new buildings and infrastructure related to the growth still need some further elaboration. As an example, in a report concerning the Vartiokylänlahti residential area, alternative scenarios for emission reduction of new construction have been examined [30] and a comparative life cycle assessment of the carbon emissions of two detailed plans is made. These plans allow new construction for up to 5,500 new residents. Two scenarios for both areas were studied, a business-as-usual (BAU) scenario and another one, which could be called a climate sensitive scenario. For both plans, a 30-33 % reduction of cumulative carbon emissions over 50 years could be achieved by adopting all currently known climate sensitive planning solutions and technologies. Furthermore, a difference of 15-19 % cumulative emissions was found between the two areas mostly caused by the varying ground conditions for building foundation. When comparing the emissions between the BAU scenario of the area planned on low-quality ground conditions by the sea (the ‘worst case scenario’) and the climate sensitive scenario of the area planned on better ground conditions (the ‘best case scenario’), the emissions caused by the former were 72 % higher than in the latter case. [31] As a conclusion, decisions concerning land use and new construction have a direct and a highly significant impact in achieving the ambitious goals of GHG emissions reduction.

The emissions reduction goal for the energy use of the whole building stock is 82 % during 1990–2035 [32]. The goal is feasible to reach, but it will require a rapid and large-scale implementation of all available actions. At the time of this study, the City of Helsinki was renewing the Action Plan, with the new aim to achieve carbon neutrality already by 2030 [33] which means even higher demand for implementing climate-wise solutions and measures. The new Action Plan was approved by the council in August 2022. In this new plan, the number of actions has been reduced to prioritise the most effective actions. [34]

In addition to the Action Plan, the City Plan is seen as one of the key instruments in achieving the significant GHG emission reductions [35]. The most important means being sustainable modes of transport as well as transformation of the energy supply systems. The role of new construction and e.g., detailed planning is not discussed. Only according to the Action Plan, improving the existing buildings’ energy efficiency by renovation would be sufficient to compensate for the high emissions caused by the

additional construction due to the aimed population growth [36]. However, as energy efficiency of buildings increase and if the temporal perspective of the emission is considered, the carbon spike caused by the building phase may be high enough to question whether new construction can ever be mitigated [37].

“*A multidisciplinary strategic planning effort*” [38] is mentioned as being a necessity for achieving the targets of emissions reduction. Assuming it means transdisciplinarity and collaboration in knowledge creation [39], it is not addressed how it will be encouraged by the city organisation. The interactive planning process regarding the creation of the City Plan is described [40] but how the planning department’s internal collaboration and knowledge integration is done, has not been elaborated.

Overall, it is not hidden in the strategy papers [41][42] that the economic imperatives are pressing towards continuous and fast growth. While any specific prioritisation of the different goals is not discussed in these documents, the growth target is better supplied with supporting arguments should a conflict arise. The climate goal seems to be given the priority over all others [43][44], but as the strategy is going to be monitored with comparable indicators³ complex climate impacts lack similar clear-cut numeric values such as the zoning and building input. Also, the current practices or, for instance, the new detailed plans do not yet seem to implement all available measures to climate change mitigation. Moreover, it has not been discussed in these documents whether a concrete limit to the growth of Helsinki in terms of population and new constructions exists.

4. Discussion

This study enforces the hypothesis that the effective knowledge integration, which is needed for the complex problem-solving in planning, is hindered by the target of growth, more specifically the pressure to produce plans to facilitate continuous urban growth. Moreover, the growth target is based on linear development of population growth which Helsinki has seen so far and is expected to continue [45][46]. Recent literature on planning has emphasised the shift from this kind of evidence-based planning towards knowledge-informed planning [47] which makes room for alternative scenarios as well as for the discussion on the limits to growth, and what else could be meant by urban development other than merely population growth. Creating and studying more and varying alternative future scenarios would also prepare the city for unexpected and sudden disruptive events and enhance its resilience. Years 2020-22 have globally demonstrated the vulnerability of our societies and the need for anticipating alternative futures.

Planners and many of the other experts working in planning organisations are overloaded with tasks and they struggle with scarce resources, human as well as monetary, and experience serious time constraints [48]. This leads to prioritisation and optimisation of the tasks. Rizzo et al. [49] have noted that already in the 1950’s planners rarely had enough time or resources, so the challenge is by no means new. Working under pressure to produce high amounts of plans to meet the city’s growth targets easily means that time used for solving planning problems collaboratively is experienced as ‘wasted’ and which is taken from the ‘productive’ personal work time [50]:

“But the timetables, and the floor area targets, and the resources given are often such that we make... Well, it’s a terrible thing to say, but we put in the minimum effort so that we can just go forward” (Landscape architect, translation by authors)

“[...] partly the pressure comes from, I’d say, having less time, less money and getting the aims from the politicians, which means we should do things more effectively.” (Architect in detailed planning, translation by authors)

³ The indicators were not available at the time of the study, so a more precise assessment concerning them has not been made.

In the Helsinki City Strategy, the city planning is given a high role in terms of reaching all its ambitious goals [51], although evident and demanding conflict-solving exists. While the latest City Strategy is based on the goals named in the previous strategies, the strengthened push towards both, population growth and carbon neutrality, suggests that any current difficulties in terms of knowledge integration in urban planning are only going to get more challenging.

Addressing the qualitative aims set for the city development, including the aim of achieving carbon neutrality by 2030 [52] requires investing time, resources, and effort [53]. Efforts must be placed on facilitating the collaboration and addressing conflicting interests and aims [54][55][56]. While struggling with the time constraints created by growth targets, it is tempting to skip the time-consuming and resource-intensive practices of co-creation necessary for achieving the ambitious environmental and climate goals [57]. It seems that the challenges in the knowledge integration are not acknowledged sufficiently by the policymakers, and the planning organisations are not given the resources they would need to invest the time and effort it would need. Furthermore, the politically set planning targets focused on growth seem to override many of the qualitative aims.

Many Nordic cities aim to densify and to constrain sprawl but also to gain new tax revenue and investments [58] - and Helsinki is no exception [59]. Helsinki is a restricted city in terms of its land area as it is surrounded by other cities (Espoo to the West, Vantaa to the North and Sipoo to the East) and the sea (in the South). Thus, the city's only option is to grow inwards. However, most of the land area suitable for building construction has already been developed, or it has significant value as a green area. The City Plan provides one scenario for Helsinki to grow with 200,000 new residents (by 2050), but it remains unclear how it all fits with the high aim of becoming carbon neutral (already by 2030). The planners seem to be restrained by the complex planning environment in which ideals concerning both collaborative knowledge production and climate change mitigation collide with fast paced building, driven by the economic and political interests [60].

5. Conclusions

Conclusions of the study indicate a need for an open discussion concerning the planning targets of cities: Is the actual target to produce ratified plans in high numbers to sustain intensive growth, or to aim for the best quality in the urban living environment and to meet the sustainability goals?

The current practices discouraging the possibly time-consuming collaborative planning practices involve several risks in terms of successful knowledge integration, such as, alternatives are not provided or studied effectively; the knowledge which informs planning may be outdated; and some essential knowledge may remain as additional attachment to the plan and, thus, will not materialise in the decision-making [61].

This study was limited to the case of Helsinki to keep it confined for the purposes of the paper. It would be interesting to conduct a similar study in the other cities, more specifically, in Espoo, Vantaa, Tampere, Turku and Oulu. All these were included in the interview study and, thus, would provide the same bases for analysis.

As long as the planning targets emphasise mere growth rather than the qualitative aims, the risk is that the transformation towards sustainable communities will not happen fast enough [62].

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