

Chapter 20

Participatory Urban Planning in the Digital Era

Aija Staffans, Aalto University, Finland (aija.staffans@aalto.fi)

Maarit Kahila-Tani Aalto University, Mapita Oy, Finland (maarit@maptionnaire.com)

Marketta Kytta, Aalto University, Finland (marketta.kytta@aalto.fi)

Abstract

Public participation is the cornerstone of democratic urban planning. In this chapter, we approach public participation and collaboration among lay people and experts comprehensively. We approach the planning process as a flow of communicative actions where the knowledge needs and modes of working go hand in hand, sometimes opening up the process to large-scale participation and other times closing down the process to an intensive collaboration among smaller groups.

We critically analyze public participation in the Helsinki Master Plan process using the model by Staffans et al (2019), that distinguishes four different modes of communicative actions in public participation. We especially focus on the study of how various communicative actions and digital tools can help address the existing challenges in public participation. Through a critical analysis and reflection upon real life planning case using various tools and collaboration arenas, we study the ability of digital participation tools to enhance communication in the various phases of urban planning processes. Herein our results indicate more effective process design in arranging communicative actions with people.

Keywords: participatory urban planning, digital tools, collaboration, participation, diverging, converging, communicative action

1 Introduction

During the last two decades, digitalisation has widely been adopted as the primary forum for citizen participation and data acquisition in urban planning. This has exploded the amount of digital data and various tools. However, the quality and utilization of the data produced is problematic, the collected data remains invisible and systematic analysis is often not realized. Consequently, participation takes place in small sequences and sporadically making the process ineffective for both planners, residents and other actor groups.

Concurrently with the rise of the information society, new arenas of public participation have emerged, and the increasing number and diversity of stakeholders have made visible the variety of knowledge related to planning issues. The internet and social media have exploded the number of individuals participating in urban processes. This increases the amount of data and challenges the ways of working with the data. The growing complexity of planning calls for a more effective and sensitive communicative process design. Urban planning takes place in a sequence of collaborative situations where the need to work together with people from different backgrounds and with a versatile and heterogeneous knowledge base grows dramatically.

In this chapter we will first discuss how the digital era has changed the way we communicate with people. We differentiate various knowledge needs and modes of working into four different types of communicative actions. Next, we will study how these different communicative actions vary

in different phases of planning process. We test the model of Staffans et al 2019 by analyzing a large city planning process in Helsinki (Finland) and close the chapter by reflecting the theoretical model in relation to our case and more generally in regard to the future of public participation.

2 How the digital era has changed the way we communicate with people

Urban planning is a challenging field, constantly seeking a balance between how to develop and change existing living environments while maintaining their valuable character. Though urban planning is considered a top-down action that aims to ensure the common good for all, its application requires sensitivity as the action is always realised in places that individuals consider meaningful through their experiential landscape. This challenge has become acute in many growing cities around the world. These cities share the same concern, namely, how to shape the existing city structure without reducing the very qualities of the living environment people value most.

Urban planners now need to be multi-skilled professionals as the questions planners focus on are closely bound up with a host of societal and value questions like the ageing society and climate change. Planners often work in large networks of experts, each tackling different thematic questions bound up with the evolution of the future living environment. Moreover, cities are simultaneously becoming smarter through the different digital layers that aim to support their growth, sustainability and usability. Today, various digital platforms and the internet are among the most important arenas for knowledge building.

Digitalisation has had a significant impact on participation and communication mechanisms and on the possibility to integrate the differing voices of the plural society more efficiently into current planning practices. The old infrastructure that has enabled the face-to-face participation of inhabitants has taken new forms through social media and other information and communication technologies (ICT) like web-based geographic information systems (WebGIS).

Digital citizenship includes the idea of the ability of citizens to effectively participate in social activities in real time via data networks (Mossberger et al., 2008). Participation as a production of knowledge in online environments is determined through its members own capacities, interests and objectives (Wenger et al., 2005). Digital citizens, or at least the 'born digital' generation, digi-natives (digital natives in Prensky, 2001), expect the same kind of high-quality usability, flexibility and reliability from electronic services provided by public administration as they do from commercial services. Applications like Wikipedia and Facebook have spawned a generation of people who are not content simply to read articles by others, but who want to comment on and add to the knowledge themselves, both as individuals and as members of a community or a network (Foth et al., 2008). The expansion in expertise and knowledge building is challenging the monopoly position of expert organisations in urban planning as producers of urban knowledge. Planners have to consider their own ways of working and the methods through which planning information is created, distributed, processed and used (Goodspeed, 2008).

To plan cities wisely, the existing participation processes should include a broader group of actors but, above all, enhance knowledge-informed planning (Kahila-Tani, 2015), that adapts and interprets – learns and creates – diverse and plural information more comprehensively. The primary question is not who organizes the participation processes, but rather, how the different participation practices can be linked together and the information produced adapted more profoundly to the planning process (cf. Saad-Sulonen, 2014; Faehnle, 2014). Therefore, planners need to be able to construct a dialogue between the various layers of civil society and link them to the digitalisation process and to the smart city structure.

One fundamental challenge in organizing participation in urban planning is the gap between the two very different communicative forms of action, i.e., participation and collaboration (Staffans et al., 2019). In planning theory, as in the practice of planning, the concepts of participation and

collaboration are widely used to describe the form of actions taking place between multiple actors. What connects these two concepts is communication and interpersonal interactions as a foundation. Planning can be conceptualised as processes of intersubjective communication in the public sphere, through which dynamic mutual learning takes place (Healey, 1997). Participation is an individual's right to participate in societal processes, whereas collaboration is a mode of working together. Participation as communication can be one-way but collaboration needs to be two-way. This notion makes it important to understand what kind of knowledge can be produced in different phases of the planning process. Based on the findings how participation and collaboration are currently implemented in urban planning (Staffans et al. 2019), it is possible to identify two approaches:

- Participation is wide and produces a lot of information but the data remains scattered and difficult to access by different stakeholders along the planning process.
- Collaboration in groups belongs to planning routines but does not easily catch the diverse interest groups and professions to the same table.

Working together in groups has become central to understanding and conducting communicative planning (Innes, 2013). However, in planning practice, collaboration is often siloed, it takes place in separate processes among experts or public workshops, and the outcomes do not or hardly integrate. Further, there is a danger that this kind of collaborative mode alone involves only particular or restricted interest groups or specific persons in the planning process (Newig and Kvarda, 2012). We still struggle to combine the broad public (participation) with the selected group of actors (collaboration) to collect, manage and process information systematically throughout the planning process. And even more importantly, we lack ways and skills to really work together with different kinds of people systematically throughout the planning process. As Rydin mentions (2007, p. 55-56), "it is much more difficult than often acknowledged to generate agreement between actors whose knowledge of an issue is rooted in very different experiences." For these reasons, we need to better understand how and with whom we are working with when striving to create better living environments together.

In Figure 1, we illustrate the difference between participation and collaboration and emphasize the gap which challenges the knowledge production of planning. In what ways are the data from broad participation brought to the collaborative tables? How are the participants in the collaborative tables selected? The produced information in the participative process does not automatically accumulate to planning knowledge and, the final integration and valuation of diverse ideas, proposals, interests et cetera produced along the planning process still remain on the planner's table. In this chapter we ask, what kinds of visions do we have for improving the collaborative working in urban planning? Do novel digital tools open new possibilities for this?

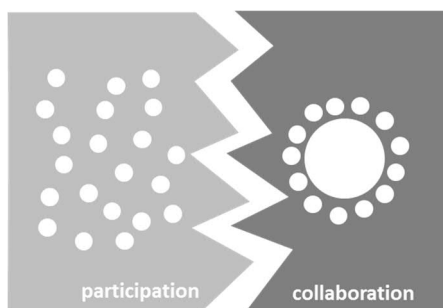


Figure 1 The gap between participation and collaboration, the different communicative actions

Concurrently with the rise of the information society, new arenas of public participation have emerged, and the increasing number and diversity of stakeholders have made visible the variety of

knowledge related to planning issues. The internet and social media have exploded the number of individuals participating in urban processes. This increases the amount of data and challenges the ways of working with the data. The growing complexity of planning calls for a more effective and sensitive communicative process design. Urban planning takes place in a sequence of collaborative situations where the need to work together with people from different backgrounds and with a versatile and heterogeneous knowledge base grows dramatically.

3 Dimensions of communicative actions in urban planning – participation and collaboration through a fourfold classification

In this chapter, we define in what ways different communicative actions, participative as well collaborative, support knowledge creation in planning. Planning can be conceptualised as processes of intersubjective communication in the public sphere, through which dynamic mutual learning takes place (Healey, 1997). Public participation and collaboration in urban planning define situations where different actors are entitled to influence decisions they are affected by or related to. Despite of the similar purpose of these two forms of engaging people in planning, the empirical data shows many practical challenges and confusing episodes from the field (Staffans et al., 2019).

The use of knowledge is a central element in achieving change through planning (Rydin, 2007). Planning is about knowledge in action, or more closely, planning is about knowledge in communicative action (see Forester, 1989; 1993; Sager, 1994; Flyvbjerg, 1998; Healey, 1997). Knowledge is embedded in social relations and generated in knowledge networks which make communicative actions substantive in planning processes.

Though communication is part of collaborative and participative actions, in the centre for both of these is the generation of knowledge. This distinction is important, because the process-oriented focus on communication restricts itself on the interaction between people, while the focus on knowledge generation broadens communication by also including the value of newly generated knowledge (content orientation). However, knowledge generation is partly an outcome of interaction and partly an outcome of activities like analysis, design, modelling, et cetera.

To overcome the parallel running and ineffective participation and collaboration processes, more coordination and awareness are needed concerning the purpose and goals of communication in both processes. Success in future arrangements calls for asking how, when, why and with whom public participation and collaboration should be organized in a specific project and in a specific phase. Followingly, a better process design is needed. Several other studies have concluded that the challenges participants have faced during participation projects narrow down to more effective process design in determining the outcomes of engagement (Vente et al., 2016; Newig et al., 2016).

The fourfold presented in Figure 2 is based on a model by Staffans et al (2019) and it positions the various communicative actions by differentiating them in two dimensions: (i) the knowledge needs; and (ii) the mode of working, that define four different types of communicative actions. In the figure, the dimensions related to knowledge needs distinguish the different goals of communication when diverging or converging planning knowledge and ideas. Divergence and convergence acknowledge both Rydin's (2007) idea of opening up planning to multiple voices and closing down when testing the knowledge claims and Champlin and Pelzer (2018) notions on divergence and convergence when generating ideas. The dimensions related to the mode of working are differentiated by the methods and tools used and the number of participants who can be reached. This distinction is needed because the possibilities for communication with the broad public are fundamentally different from the communication in a small group. In the fourfold, participation refers to working and communicating with the broad public and collaboration refers to working in small, selected groups.

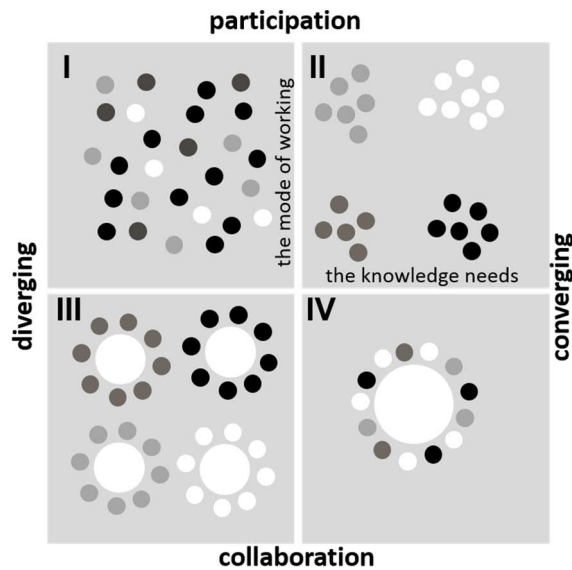


Figure 2 The knowledge needs and the modes of working define four different types of communicative actions in urban planning

The fourfold explains and differentiates varying communicative actions according to the knowledge needs and working modes:

- Communication in the upper left corner refers to the situations where broad public produce diverse information or ideas for planning. The goal is to get as many individuals as possible to give their knowledge input to the process. The output comprises of a large variety of data, information, knowledge and ideas as a foundation for further phases.
- Communication in the lower left corner happens in smaller groups and is more about working together to make an input to the process. The goal is to get knowledge and ideas from diverse groups to be elaborated further in the process. The output contains a variety of different approaches and ideas as a foundation for further phases.
- Communication in the upper right corner converges (structures, organizes) knowledge with the broad public. The goal is to recognise what kind of support different ideas or knowledge claims get from people. The output includes valued knowledge claims or selected ideas (one or more) for further elaboration.
- Communication in the lower right corner organizes knowledge in a smaller group. The goal is to integrate and further develop planning knowledge and ideas in a collaborative manner. The output is a shared understanding of the direction and contents of the related planning process.

In a planning process, when proceeding from diverging to converging, an extra effort should be put on cross-fertilization of knowledge and ideas. In collaborative settings this means that the selection of participants around the table should represent various backgrounds. In participative settings, the convergence can mean for example, that knowledge produced via large scale participation is further elaborated and developed in small groups.

4 The flow of communicative actions when opening up and closing down the different phases of planning: diverging and converging models of urban planning

In this chapter we illuminate how the various communicative forms of action that were described in the previous section can support the various phases of the participatory planning process. The key

questions are: how to combine the ways of reaching the broad public and groups of experts and other actors; how to support the inclusion of both forms of action; and how to apply non-digital and digital tools alongside the process.

Planning processes can be understood as flows of communicative actions where the knowledge needs and modes of working go hand in hand, sometimes opening up the processes and sometimes closing down the processes. With opening up we mean diverging and creating new knowledge. At some moment when diverging is needed to produce and construct knowledge and ideas, there are both digital and non-digital ways to communicate both with the broad public and in smaller groups. With closing down we mean converging and assessing the value of generated knowledge and ideas. To converge, as well both digital and non-digital ways to communicate has been developed that are available both for the broader public and group working.

The flow of different communicative actions along the planning process is illustrated in the Figure 3. The process flow recognizes three different imaginary phases: goal, vision and plan. Each of these phases converge into some outcome, which defines and shapes the knowledge needs and contents of planning towards shared understanding. This process model of diverging and converging owes much to the so called double-diamond model known from design science (<https://www.designcouncil.org.uk/>) but is incorporated here into the context of urban planning.

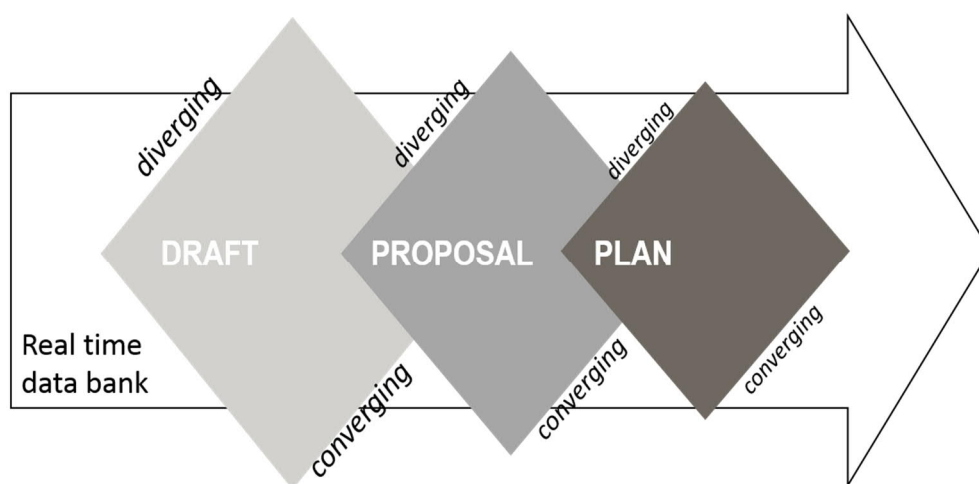


Figure 3 The flow of communicative actions when opening up and closing down the different phases of planning

In addition to various tools and working methods, an online and real-time data bank is needed to collect and store all data, including data produced in participation and collaboration activities. This databank is needed for 'pooling' the data and for analysis purposes. The databank should also be capable of remembering the earlier phases of the process working as a revision tool. Importantly, the databank should include multiple knowledge formats as part of the knowledge is in geographical information system (GIS) format and part in written statements, pictures, et cetera. The databank should also be at least partly open for the public, supporting the divergence phases of the process when the different actors can study how the knowledge has accumulated. This would ease also the convergence sessions when the same databank can be used to stimulate and support the face-to-face dialogue. In the next section we will illustrate the communicative challenges of urban planning by one case study, the Helsinki master planning process.

5 An illustrative case study of a large city planning process

The City Plan process of Helsinki, Finland, is an example of a large city-wide urban planning process. "The Helsinki City Plan is a strategic long-term plan for land use. It gives a roadmap for Helsinki's growth by 2050, providing for population growth by up to 250,000 new residents" (<http://www.yleiskaava.fi/en/2017/brochure-helsinki-new-city-plan/>). The Helsinki City Plan pursues to ensure the sustainable growth of the city until 2050 by strengthening the functional networks and by steering new city fabric towards public transport corridors. The City Plan process was managed by the Helsinki city planning organization, where about 20 planners, architects and engineers worked in the process. The 'service promise' of the process emphasised openness and transparency from the very beginning. "All information connected to the City Plan will be put on this website at www.yleiskaava.fi. The website contains material and updates on the progress of the planning with up-to-date information on sessions and events" (<http://www.yleiskaava.fi/en/city-plan/>). In a blog article on 7 November 2012, the leading planning officer invited people to join the process. After a four year long process, the City Council approved the city plan in October 2016.

When the planning process started in 2012, the City of Helsinki aimed to realise an ambitious public involvement process. A variety of interaction methods were used, such as seminars, workshops, a hackathon, city planning fairs, surveys and meetings. Along the process, in total 1,577 residents participated seminars or workshops and, e.g., 3,745 people answered a map-based survey on the internet. The web pages of the City Plan were also in active use. The phases of the project were documented in blogs and a lot of City Plan-related material was published on the site. In total, 10,915 persons participated in the city plan process either physically or virtually. In addition to this number is the lawful, formal participation; 2,585 written opinions and objections were given by individuals, associations or other interest groups concerning the draft plan or the proposed plan.

The main components of the Helsinki City Plan participation process are presented in Table 1. The process followed the phases defined in the Finnish planning legislation but included also several extensions of public involvement. The formal modes of interaction consist of three elements: (i) the initiation of the planning process must be publicized so that interested parties have the opportunity to obtain information on the principles of the planning and of the participation and assessment procedure (Participation and Assessment Scheme); (ii) hearings in preparing the plan; and finally, (iii) before decision making, the interested groups shall be provided with an opportunity to express their opinion on the proposed plan (objection) (Finlex, 1999).

In Table 1, we have identified all the communicative actions implemented in the Helsinki City Plan process. We have also analysed the type of public involvement of Helsinki City Plan by applying the four-fold classification presented in the previous section. Most of the communicative actions are based on individuals participating in events, commenting on presented materials or answering surveys. These actions represent type I mode of action, diverging participation. Some of the events have also included type III, diverging collaborative modes of working, like preparing the alternative plans in local workshops and small groups. From the knowledge production point of view, most of the communicative actions presented in the table are interpreted as being diverging by character; participants have produced opinions, answers, alternative plans, et cetera. Only four actions represent converging participation (type II mode of action). Here, the material produced in the public participation process has been gathered and responses are given by the officials in the four interaction reports. It is, nevertheless, prominent that converging collaboration (type IV mode of action). efforts are totally lacking. There has been no attempt to solve conflicting opinions or make conclusions in the reports or anywhere in the documents.

Table 1. Communicative actions in the Helsinki City Plan process from 2012 to 2016

		Communicative actions (CA)	Type of CA	Digital format
VISION	2012	November: Work plan and public participation plan (PPP) presented, comments asked from public	PARTICIPATION, DIVERGING	Published online
		Spring: 8 thematic seminars for the residents; discussing the vision prepared by the city; circa 800 participants	PARTICIPATION, DIVERGING	Online invitation
	2013	Interaction report I: Replies to the comments on participation assessment scheme and master plan vision (http://www.yleiskaava.fi/wp-content/uploads/2013/10/vuorovaikutusraportti_221013.pdf)	PARTICIPATION, DIVERGING	Published online
		November-December: Helsinki 2050 map-based survey; 3745 respondents	PARTICIPATION, DIVERGING	Online map-survey
DRAFT PLAN PREPARATION	2014	February-May: 'Spend a moment as a planner' local workshops; 250 participants, 27 alternative plans	COLLABORATION, DIVERGING	Online invitation
		Analysis report I: January: Report and online visualization tool about the results of the map-based survey (http://yleiskaava.maptionnaire.com/fi/)	CONVERGING (consultants' and planners' analysis)	Published online
		Analysis report II: Qualitative analysis of the survey	CONVERGING (researcher's analysis)	Published online
		Spring: Hackathon event where the open map-based data was further analysed by developers	PARTICIPATION, CONVERGING	New open data applications
		Autumn: Urban Planning Safaris, 167 high school students	COLLABORATION, DIVERGING	Published online
		Interaction report II (summarizes people's opinions of the vision) (https://www.hel.fi/hel2/ksv/julkaisut/yos_2014-37.pdf)	PARTICIPATION, CONVERGING (officials analysed the discussion)	Published online
PROPOSED PLAN PREPARATION	2015	January-February 2015: Putting the draft on display; 1,141 opinions	PARTICIPATION, DIVERGING	Published online and online commenting (optional)
		January-April: 'Spend a moment as a critic' workshops, presenting the draft, 4 workshops, 360 participants	COLLABORATION, DIVERGING	Online invitation
		Interaction report III (answering the given opinions on the Draft Plan) (https://www.hel.fi/hel2/ksv/julkaisut/yos_2015-4.pdf)	PARTICIPATION, CONVERGING (stakeholders comment, officials' answers)	Published online
POLITICAL PROCESS	2016	Putting the proposal on display (December 2015-January 2016); 1,444 objections	PARTICIPATION, DIVERGING	Published online; objections by email (optional)
		Interaction report IV (answering the objections on the Proposed Plan) (https://www.hel.fi/hel2/ksv/julkaisut/yos_2016-2.pdf)	PARTICIPATION, CONVERGING (stakeholders comment, officials' answers)	Published online
		Plan was approved by the Helsinki City Council in October 2016; 50 appeals of the approval to Helsinki Administrative Court		Council meeting material published online
APPEAL PROCESS	2018	February: Helsinki Administrative Court decides: the plan is partly illegal and parts of it are overturned. The City of Helsinki and 20 other stakeholders appeal to the Supreme Administrative Court		Informed online
		November: Supreme Administrative Court discards the complain of the City of Helsinki and the decision of Helsinki Administrative Court is		Informed online

		final. Several key elements of the Helsinki City Plan are stated as illegal.		
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Table 1 presents the role of digital fora in the City Plan process. Digital communication was mainly one-way communication, concentrating throughout the participation process on informing and inviting people online, sharing and publishing reports. Compared to the number of residents typically reached via traditional participation methods, the amount of digitally enabled participation input given in Helsinki was clearly higher. For further analysis, we have chosen two of these digital fora, both of which represent two-way communication with people. These two, the blog articles on the city web site and the map-based survey, gathered a lot of interest and citizen answered the survey and commented the blog texts eagerly.

The blog articles were published on the formal City Plan web site by 50 writers, mostly officials but also some politicians and researchers contributed to the site. The blog articles were organised under eight subtitles, two of which focused on the process (Planning process, Participation) and six on thematic areas of planning (Housing, Mobility, Energy, Work and business, History, World cities). Altogether 235 blog articles were published, of which 72% (171) were commented. The total amount of comments was 5,593 and the average number of comments per article was 23.4. Figure 4 illustrates the amount and timing of blogs published in the section on Participation. Altogether 85 blog articles dealt with participation and 1,865 comments were given to these articles. The first article was published in November 2012 and the last one in August 2016.

The online Public Participation GIS (PPGIS) survey using the Maptionnaire service (<https://maptionnaire.com/>) was developed by consultants and city planners together. The survey was openly marketed, and it reached 3,745 participants (Kahila et al., 2016). In this survey, residents were asked to map locations suitable for new building and green areas that should be protected. The survey respondents marked altogether nearly 17,000 potential new building sites and about 5,000 unique city nature spots that should be protected. The respondents of the survey were, however, not always like-minded when the locations of their suggested new building sites and important green values were compared geographically. There were areas where suggestions for new building sites dominated and areas where important green values dominated but also, highly contradictory areas (Figure 5). In these areas, the residents had conflicting views about the future of these sites, whether they could be built up and densified or protected. Some of these places have been recognized as areas of conflict even in the local media, but have mostly been described as conflicts between residents and urban planners, instead of conflicts between different resident groups. The analysis thus revealed several contradictory places in Helsinki where residents' opinions about future development clashed.

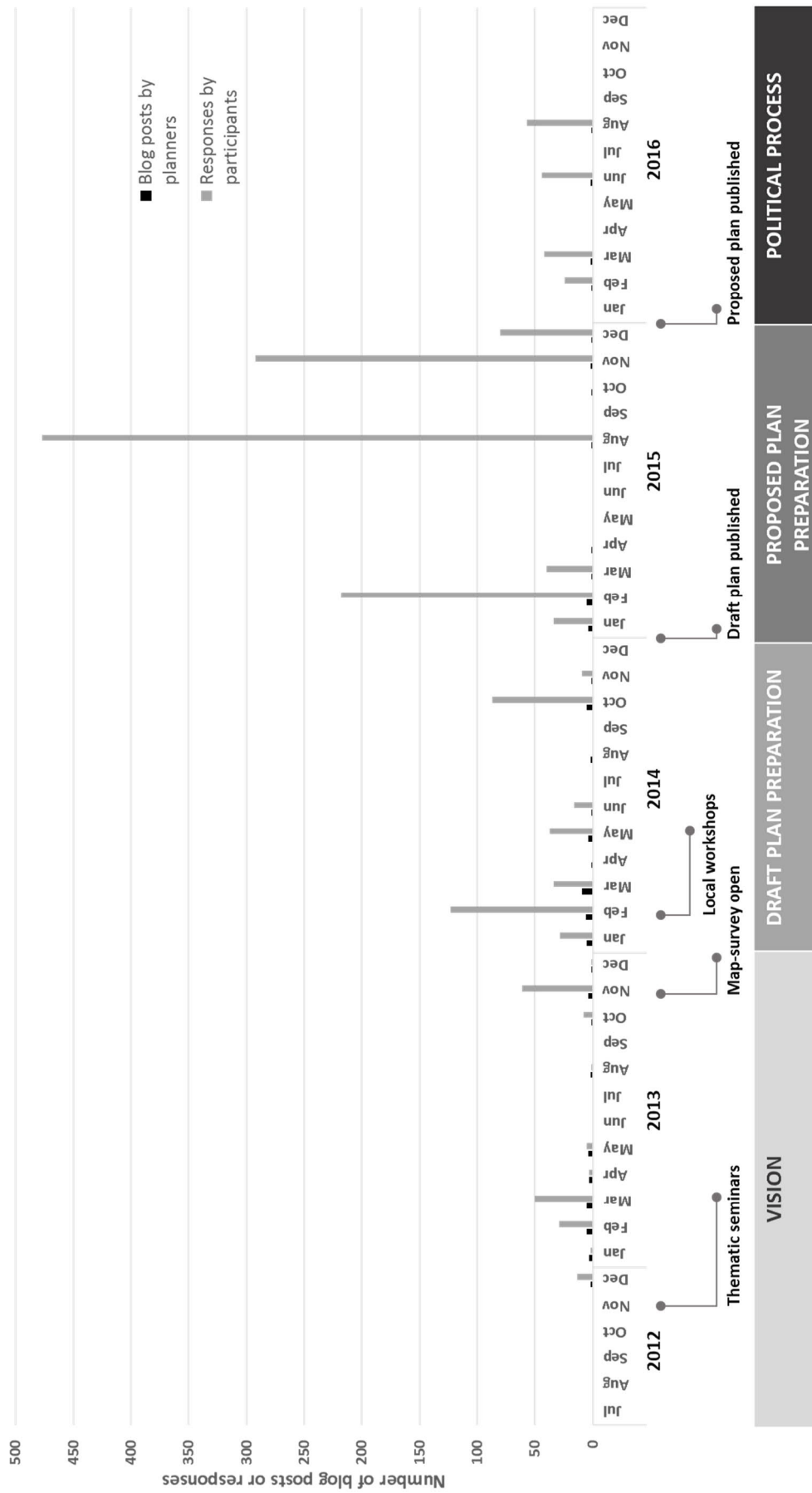


Figure 4 The amount of blog articles on participation and comments on them

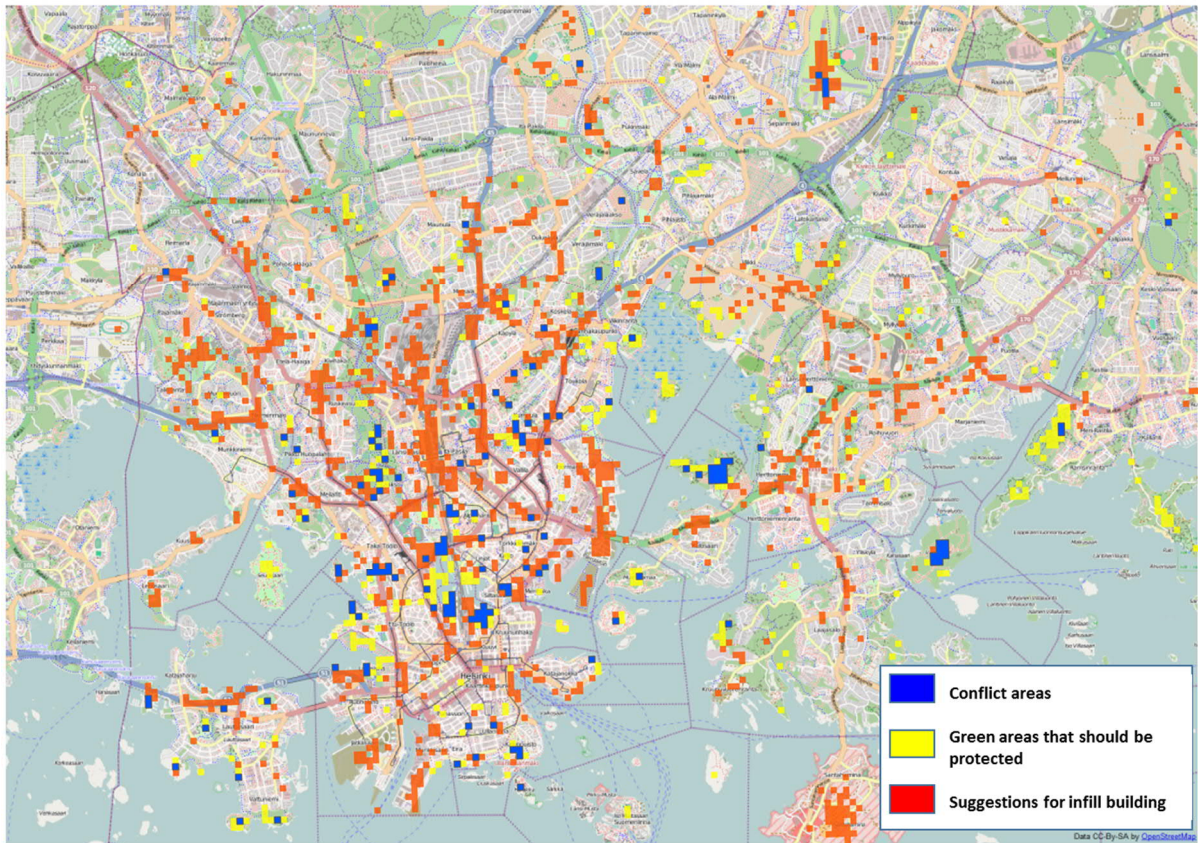


Figure 5 The visualisation of the places, generated by the map-based survey, where residents' opinions clash

Both of these web-based forms of communication, the blogging and the map-based survey, produced a huge amount of data from citizens. The geo-information of the survey, the 33,000 locations, were analysed both by researchers and by planners but the analyses were not available in the local workshops in spring 2014, so the material was presented instead as raw data. The 5,593 answers to the blog articles were not analysed systematically, although the planners followed the blog discussion and commented on the answers. A frustrated citizen summarizes the process on the web page: "After having read the comments on the City Plan I have a really empty feeling! This commenting does not make any sense when no planner or other official answers the comments. This is a great example of apparent interaction and democracy. And after this, politicians and planners boast how open and interactive our city is, when the citizens can tell their opinions as if to influence the planning process. This kind of participation is like shouting to the wind, when the decision makers do not have a genuine will to discuss" (16.6.2018).

The gathered data serves the planning process in diverging the knowledge base of planning. This is where digitalisation has opened new opportunities for public involvement. A huge amount of everyday experiences, preferences, opinions and ideas emerge to the planning process through the digital channels. However, the increasing amount of data raises the question of how to utilize all this material. The more we have data in different formats, the more we need analytical tools and willingness to understand the different approaches to urban environment. x

Before conclusions, some additional notions on the Helsinki City Plan process need to be exposed. In urban planning theory, early timing of participation has been emphasized as it enables the effective use of knowledge, but also supports the acceptability of the plans by fostering trust among

participants (Innes and Booher, 2004). However, in our case study, many important political choices were already made before the public participation even started. The public City Plan process was preceded by vision work that outlined the population growth of Helsinki being circa 38 % from 2016 to 2050 and subsequently, the volume of desired new land use being 10-15 million square metres. This growth policy and the preset goals behind the vision met a lot of objection and affected the whole participation process. Many conflicting views embroidered the process from the very beginning, especially concerning green areas and transportation planning. More collaborative efforts could have helped converging these views, reducing the appeals and finally, saving time and money in getting a better plan.

6 Discussion and conclusion

In this chapter, we have studied how digitization supports various communicative actions in public participation. We have tested a model by Staffans et al. (2019), where the distinction between participation and collaboration is made to better understand the conditions of public involvement and communication in urban planning. Another differentiation in the model is based on knowledge needs when diverging and covering information along the planning process. This model was used as a framework to analyse the public involvement activities in our case study of Helsinki City Plan process, where we studied the role of various digital fora and tools in the planning process

In the Helsinki City Plan process, the main platform of communication and the scaffold of publicity was the web page that gathered and presented all activities during the process. Even now, after some years, the process can be followed, and materials can be traced by the web page. The relevance of our model in analyzing this process was twofold. Firstly, it revealed the dominant role of diverging in public participation and the lack of converging activities. Diverging can be seen in the large variety of comments, critics, ideas, et cetera, produced along the process. Some parts of this material were annually gathered in the participation reports, but not all. The urban planners also published blog articles, followed the discussion and sometimes commented it but, at the end, did not conduct any systematic analysis of the discussion. The nearly 6000 comments on the blog articles were not analysed or even mentioned in the interaction reports.

When analysing convergence in the process, some problematic interpretations emerged. It remains debatable, whether reporting means converging and if yes, what are the requirements. Anyhow, reporting is one-way communication and the content of a report needs further elaboration and communication to contribute knowledge creation in planning. What was mostly missing in the Helsinki process, was two-way communication of the reported findings with the participants, and a more transparent process of how all the participation material was used in the content development of the city plan.

Secondly, when analyzing the working mode in various communicative actions along the process, it was easy to recognize when collaboration took place, or did not. What was more difficult to analyse, was whether the collaborative actions really included cross-fertilisation and integration of various ideas and data. For converging, cross-fertilization and integration are crucial.

To conclude, more attention in communication should be put on the link between the produced knowledge in the public participation process and the content and solutions of the plans. The model applied in this chapter helped to recognize this gap. Digital platforms, especially the internet, have increased the number of participants and subsequently, the amount of produced knowledge has exploded making the large-scale participation and diverging knowledge creation possible. At the same time, the need and challenges of two-way communication and converging are becoming ever more crucial. Communication between people is multifaceted and cross-fertilisation of various knowledge sources and versatile modes of working needs to be developed. The role of digital fora and tools in

Accepted to be published in Handbook of Planning Support Science (2019) (eds. Stan Geertman & John Stillwell). Springer International Publishing.

converging planning knowledge remains to be seen in future studies. Digitalisation could support converging the data to be more accessible, analytical and visual, but what is also needed is collaborative forms of working together.

Our study raises the question of the efficiency and effectiveness of participation in urban planning. We need much more systemic analysis of the feasibility of the various modes of communicative action and digital tools that support them. Only through this increasing evidence, the guidelines of efficient and effective practices of public participation can be identified.

References

- Champlin, C., te Brömmelstroet, M. and Pelzer, P. (2018) Tables, tablets and flexibility: Evaluating planning support system performance under different conditions of use. *Applied Spatial Analysis and Policy*, 1-25.
- Champlin, C., te Brömmelstroet, M. & Pelzer, P. *Applied Spatial Analysis* (2018).
<https://doi.org/10.1007/s12061-018-9251-0>
- Faehnle, M. (2014) Collaborative planning of urban green infrastructure: Need, quality, evaluation, and design. Doctoral Dissertation. Department of Geosciences and Geography A26, Helsinki.
- Finlex (1999) Land Use and Building Act 132/1999. Available 15.11.2018:
<https://www.finlex.fi/fi/laki/kaannokset/1999/en19990132.pdf>
- Flyvbjerg, B. (1998) Habermas and Foucault: Thinkers for civil society? *The British Journal of Sociology*, 49(2), 210–233.
- Foth, M., Choi, J. H., Bilandzic, M. and Satchell, C. (2008) Collective and network sociality in an urban village. In Proceedings MindTrek: 12th international conference on Entertainment and media in the ubiquitous era, pages pp. 179-183, Tampere, Finland.
- Forester, J. (1989) *Planning in the Face of Power*. Berkeley, Los Angeles ja Lontoo: University of California Press.
- Forester, J. (1993) *Critical theory, public policy, and planning practice: Toward a critical pragmatism*. SUNY Press, Albany, NY.
- Goodspeed, R. (2008) Citizen participation and the Internet in urban planning. Unpublished Master's Thesis. University of Maryland. <http://goodspeedupdate.com/wp-content/uploads/2008/11/goodspeed-internetparticipation.pdf>
- Healey, P. (1997) *Collaborative Planning. Shaping Places in Fragmented Societies*. Hampshire and London: MacMillan Press Ltd.
- Innes, J.E. and Booher, D.E. (2004) Reframing public participation: Strategies for the 21st century. *Planning Theory & Practice*, 5(4): 419-436.
- Innes, J. (2013) A turning point for planning theory? Overcoming dividing discourses. Working Paper, No. 2013-04, University of California, Institute of Urban and Regional Development (IURD), Berkeley, CA.
- Kahila, M., Broberg, A., Kytä, M. and Tyger, T. (2016) Let the citizens map - public participation GIS as a planning support system in Helsinki 2050 master planning process. *Planning Practice and Research*, 31(2):195-214.
- Kahila-Tani, M. (2015) Reshaping the planning process using local experiences: Utilising PPGIS in participatory urban planning. Aalto University publication series, 223. <https://aaltodoc.aalto.fi/handle/123456789/19347>
- Mossberger, K., Tolbert, C.J. and McNeal, R.S. (2008) *Digital Citizenship. The Internet, Society and Participation*. Massachusetts, MA: The MIT Press.
- Newig, J. and Kvarda, E. (2012) Participation in environmental governance: Legitimate and effective? In Høgl, K., Kvarda, E., Nordbeck, R. and Pregernig, M. (Eds.) *Environmental Governance. The Challenges of Legitimacy and Effectiveness*. Edward Elgar Publishing, Cheltenham, pp. 29–41.

Accepted to be published in Handbook of Planning Support Science (2019) (eds. Stan Geertman & John Stillwell). Springer International Publishing.

Prensky, M. (2001) Digital Natives, Digital Immigrants. *On the Horizon*, 9(5), Yorkshire, UK: MCB University Press.

Rowe, G. and Frewer, L.J. (2004) Evaluating public-participation exercises: A research agenda. *Science, Technology, & Human Values*, 29(4): 512-555.

Rydin, Y. (2007) Re-examining the role of Knowledge Within Planning Theory. *Planning Theory*, 6: 52-68.

Saad-Sulonen, J. (2014) Combining participations. Expanding the locus of participatory e-planning by combining participatory approaches in the design of digital technology and in urban planning. Doctoral Dissertation. Aalto University.

Sager, T. (1994) *Communicative Planning Theory*. Aldershot: Avebury.

Staffans, A., Kahila-Tani, M., Geertman, S. and Sillanpää, P. (2019) Towards communication-oriented and process-sensitive planning support. In review in *Computers, Environment & Urban Systems*.

Rydin, Y. (2007) Re-examining the role of knowledge within planning theory. *Planning Theory*, 6: 52-68.

de Vente, J., Reed, M., Stringer, L., Valente, S. and Newig, J. (2016) How does the context and design of participatory decision making processes affect their outcomes? Evidence from sustainable land management in global drylands. *Ecology and Society*, 21(2).

Wenger, E., White, N., Smith, D. and Rowe, K. (2005) *Technology for Communities*. CHEFRIO Book, Chapter v. 5.2. http://technologyforcommunities.com/CEFRIO_Book_Chapter_v_5.2.pdf