Public Participation GIS: Possibilities and Barriers to Expand Participation through Technologies

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ABSTRACT

The thesis investigates the potentiality of the use of Public Participation GIS methods (PPGIS) to engage people in planning processes in the Nordic context. The active participation of citizens is discussed in planning literature since long, but in practice it is difficult to achieve and to assess the role of participation in planning processes. The questions remain if public participation is itself a goal of democracy in planning practice, in which way participation is useful to achieve better, fair or just processes and what benefits can be achieved though participation. In the last decade, these questions have been discussed in parallel with the advancement of technology. This thesis looks specifically to the PPGIS method as it makes use of technology to accelerate the communication between citizens and public authorities. PPGIS represent nowadays a possible turn in the management of the participation itself, with a potential to involve easier and faster citizens in public policy. The opinions of citizens also in relation to participatory budgeting have been proven to be meaningful through PPGIS tools. However issues of public participation and the active part of citizens in the co-design of planning processes seem not all solved. The thesis investigates the PPGIS planning experiences occured in the Nordic countries specifically, where these technologies have been tested and advanced in recent years. The case studies here explored will be the master plan for the city of Helsinki (Finland) (2018-2020) and the work-in-progress adopted by Kristiansand (Norway) (2020-now) to concretise the compact city ideals. Identifying benefits and shortcomings of the PPGIS approaches, the aim is to highlight how this technology is facilitating the interplay between professionals and the citizens in the co-design and co-management processes of innovative urban solutions, paving the way for a more organic implementation of these digital tools in the planning process.

Contents

Introduction

The management of public engagement during planning processes is a long-standing problem, that has been much debated in urban planning theory. When it comes to find practical solutions and to apply them, the discrepancies between abstract models elaborated in the academy and the real challenges faced by urban planners start to appear (Lea, 2016). In this context, the introduction of new IT technologies could foster not only an empowerment of the governmental capacities of the public administrations, but also it could create a new way to communicate with citizens, representing a new platform to radically transform the dialogue between citizens and public officials.

One tool, that for its charachteristics can fit this purpose, is surely represented by the PPGIS software, especially when applied in a planning context. It enables not only to gather precise and varied data from a wide audience, but it also opens the possibility to the citizens to speak out and be more proactive in the design of the city's future.

1.Research Design

This chapter describes the structure that lies at the base of the research project. The first section illustrates the main research question and the correlated subquestions, through which the main research question will be answered. A table provides a brief summary of the conceptual framework, which marks the boundaries of the field of research of the thesis. The second section describes the methodologies adopted for the data collection.

1.1 Research Question

The formulation of the question moves from the consideration that citizens' engagement in urban planning process is difficult to achieve but the recent adoption of new technologies, related to the information technology sphere, such as Public Participation Geografic Information System (PPGIS) methods, could trigger a positive change in the way planning practice is performed between citizens and planning officials. In the some of the Nordic cities, these new approaches have been in use since a few years. In order to investigate the issue, the following research question and subquestions have been developed:

"In which ways PPGIS could affect the public participation towards a more collaborative approach in the Nordic cities?"

- How participation is understood in the planning theory and how it interplays with new ICT technologies?
- How the PPGIS methods have been used in the cases of drafting the strategic plans in the cities of Helsinki and Kristiansand?
- Which are the gaps of the participation practice that PPGIS can fill and which are the prospects of its wider use towards a governance model?

1.2Research Design

For better clarity, the research design, which will guide to the answer to the main research question, has been represented through a simple scheme.

Initial problem: The lack of engagement experienced by citizens has different origins, that partly lie in the form in which the participatory processes have been traditionally managed, but also because the participation is felt as a meaningless practice by citizens themselves.

Research Question: In which ways PPGIS could affect the public participation towards a more collaborative approach in the Nordic cities?

Subquestion 1: How participation is understood in the planning theory and how it interplays with new ICT technologies?

Subquestion 3: Which are the gaps of the participation practice that PPGIS can fill and which are the prospects of its wider use towards a governance model?

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Methods

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Literature review

Methods

Critical review of practitioners' stories

Literature review

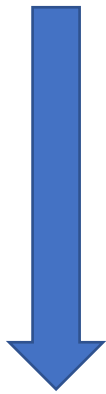**How participation is understood in the planning theory and how it interplays with new ICT technologies?**

The question will be answered through a review of academic literature about participation in planning, with a special focus on communicative planning, which is the main reference for the theoretical framework. It will explain the contemporary approach to the situation, assessing the current practices in the discipline. Then, a second branch of theory will be introduced, referring to the progressive digitalization of the urban environment (a process loosely described by the term "smart city"), which is seen as complementary to the participatory practices and capable of taking the process of digital governance a step further.

How the PPGIS methods have been used in the cases of drafting the strategic plans in the cities of Helsinki and Kristiansand?

The discussion will then shift to the Nordic cities, which define the boundaries of the thesis field of research. Here, three practitioners' stories, focused on different planning sectors, will be presented and analyzed to better understand the implementation of PPGIS methods in real planning process. The first story analyzed is the application in the city of Helsinki (Finland) to the drafting of walkability plan of the city. The focus will be on the process that brought to the drafting of the walkability plan, which has started in 2018 and it is now in the phase of being approved. The other two practitioners' stories take place in the city of Kristiansand (Norway), which is taking part in a larger project, which involves several Scandinavian cities. The discussion will be developed with the help of the municipal planners, who are committed to the creation of the citizen engagement to draft an environmental and land use strategy, through the innovative use of PPGIS methods and data creation with citizens**.**

Which are the gaps of the engagement process that PPGIS can fill and which are the prospects of its wider use towards a governance model?

In the final section, the experiences of the two cities will be critically reviewed and problematized in relation to theoretical framework. The limits of the PPGIS methods in the ongoing projects will be discussed and a reflection on the real prospects of an organic integration of such tools into the process for the creation of strategic urban plans.

1.3 Methodology

1.3.1 Literature review

The first step of the research has been the study of the literature produced about the different conceptions of participation theories in planning, with a special focus on communicative planning, which constitutes the backbone of the contemporary approach. The second theory, which has been used as a reference, is the developing study, in the urban context, of the implementation of digital tools, mostly web related, which could further being intersected with existing practices of management of citizen engagement during planning processes. The study of the literature has been conducted prior of the data acquisition through the interviews, giving the possibility to get in advance a deep insight of the discipline's problems and to better manage the interviews. The literature review has also been used to lie the foundation of the research framework, tracing the path during the analysis, and as a starting point of the critical discussion of the results in the ending part.

1.3.2 Interviews

The thesis has taken advantage of qualitative data acquisition and the form of the semi-structured interview has been chosen as the best modality. The replies of the interviewees (who will be described more accurately afterwards) have been used to create practitioner's stories about the different experiences from different actors, involved in the use of PPGIS software while dealing with engagement processes. The semi-structured interview form allows to keep a general common frame between the replies of different interviewees, thus facilitating a better comparison, while keeping a fair degree of flexibility, to go more in depth in some topics when required.

The following people have been interviewed:

- Solvor Stølevik, Kristiansand municipality
- Christina Rasmussen, Kristiansand municipality
- Anu Hämäläinen, Helsinki municipality
- Henna Hovi, Helsinki municipality

1.3.3 Practioners' story

Since the beginning of the 80s, the activity of planners when dealing with work experiences in the field has been a focus in the study of some scholars, like Schon and Hall (Lissandrello et Al., 2017). The planners' attitude towards the precepts of their discipline and their problem solving abilities when confronted with real situations is a source of practical "know-how" to tackle the contemporary challenges of public engagement. The tales of their actions are a litmus test of shifts to which planning profession is subject nowadays (Lissandrello et Al., 2017), in relation to the changes in values and identity of the core of Western democracies. (Campbell and Marshall 2005; Campbell 2010; Inch 2012; Grange 2013, 2014). The importance of the study of the planners' "*micro practices*" (Lissandrello et Al., 2017) is to show how they navigate in their daily practice within the bigger tendencies that permeate planning culture and how they contribute to change the discipline through their actions (Lissandrello et Al., 2017).

The form chosen to present the different experiences of planners is the practitioner story. This format has been regarded as appropriate to have an insight not only on the planners' actions during the planning process, but also to gain knowledge of the political and social context that inevitably influence such actions. The interviews were not just a tool to retrieve data from the planners' experiences, but they were more of a conversational spaces, where a productive debate has developed along with the answers given and their subsequent problematization. The stories are a tool of exploration of the reality of engagement throught the eyes of the professionals, who shape the existing processes with their values and test the possibilities for new kinds of dialogue, which could hopefully contribute to a more meaningful participation. The stories are from planners who face the exercise of their practice in three different sectors (environmental policies, land use and transport planning) and all of them experimented or are about to use PPGIS methods during the participation process they are into. The planners come from two different Nordic cities, Helsinki(Finland) and Kristiansand(Norway).

2. Theoretical Framework

This section describes the main theories upon which the research will rely on. The participatory planning has accredited itself as the main reference in contemporary planning practice and represents a pillar of the discipline. Even if the theory sets clearly the goals, the ways and the tools to achieve them may adapt to the socio-cultural contexts where the planning process takes place. This is the reason why of the introduction, in the second part of the section, of the modern digital tools, which are influencing the practice nowadays and which could potentially transform the relationships between citizens, stakeholders and planning officials**.**

2.1 Participation history and its nowadays heritage

The participation history in planning begins at end of the first decade after World War 2 years and it embodies the reaction to the previous phase of planning theory, that layed its foundation on the concept of the "blue print", which had characterized the discipline since it was officialized in the last years of 1800 (Lane, 2005). The idea of a public common interest and the formulation of the planning practice as an apolitical activity are the main legacy of this first phase of the discipline (Lane, 2005).

Lane (2005) notes that this evolution of the perception of the discipline brought lately at the step of the so-called synoptic planning, where it was acknowledged the existence of a public interest, which needed to be accomplished by the whole society. It was recognized that the implementation of the blue print was not enough to reach this goal and more information had to be integrated in the plan (Lane, 2005).

The exponential growth of cities, coupled with the increased possibility of relations among different urban centers, further complicated the implementation of plans, which needed far more articulation compared to the past to be put into effect: this necessity evolved in the conceptualization of

incrementalism (Lane, 2005). The idea at the base of this theory was that the application of the plan needed to be broked down into several phases, to give the possibility to the planners to face the unavoidable problems, which would arise in front of the complexity of the matter. This sequencing of the plan would have created enough "space of manoeuvre" to let the planners formulate solutions along the plan implementation, further improving it. In this era, informal engagement was introduced as a tool to rate the value of the plan (Lane, 2005).

However, it was not until the 70s that public participation was conceptualized as it is intended in the contemporary discipline (Lane, 2005). The planner figure evolved into a more communicative shape and it needed to confront itself with the citizens, creating a dialogue which could benefit the sharing of knowledge among the participants. Also the concept of feedback gained prominence in this phase; the participation was encouraged as a way to share power and responsibilities (Lane, 2005).

This evolution of the planner's figure became even more evident in the advocay planning theory, in which the planner needs to deal with a lot of different, and often conflicting, interests. He is called to make sense of all the diverse needs and trying to reflect them in the production of a comprehensive plan (Lane, 2005). Since that time, the communicative planning theory has been widely circulated and adopted by the practitioners. The basic concept of this theory is that communication must guide and try the public debate (Healey, 1996). According to the theory, the most open dialogue among the participants (regardless of the power they hold in the debate) should be developed (Innes& Booher, 2000). Then, it is up to the planner to moderate the different stances and synthesized them into a plan, which is the result of a shared compromise among all the parties involved (Lea, 2016).

Participation is therefore considered essential to enhance the outcomes of a planning process (Horney& al, 2016). Moreover, one of the quality of participation is the chance to add local knowledge to the process (Rydin&Pennington, 2000; Innes&Booher,2000). This improved knowledge has also positive effects on the quality, for instance, of land use management (Marzuki, 2015). The feedback received during the process has also the beneficial effect of counterbalancing the erroneous assumptions which may afflict a plan, contributing to enhance its output (Drazkiewicz &al, 2015).

So "How much and what kind of public participation should there be in contemporary democracy?" asks Fung (2006) and his question is still really up to date. The topic of participation in planning has a very broad understanding, so that it should be always questioned what are the goals of a participation process, within a contemporary governemental framework. For the aim of this

research, participation should not be understood as a direct challenge against the "status quo", but rather as an opportunity where all the parties interested in the transformation of the cities' spaces- which means physical spaces, but also the transformation of the behaviours regarding the use of spaces – are able to find a shared consensus over a solution. In the end, participation should be seen as a complementary governance tool, aimed at a better implementation of democracy on a local level (Fung, 2006). With this goal clearly set in mind, there is still evidence that the cathegorization of participative processes has not changed much from what Fung (2006) described: most of them show, still, a really low level of interaction between governmental authorities and citizens, with a univocal communication in the majority of the cases. There is still, indeed, a lot of improvement that need to be carried out to bring the participation practice towards a more deliberative form.

Because there is not a common agreement on what is the best practice to perform something that is regarded as a "good" participation process, – and, in some ways, it is also impossible to find a universal practice, because these processes are highly affected by the context in which they take place (Fung, 2006) -, academics have always felt the urge to find evaluation frameworks. It is necessary, infact, to understand how is possible to compare different processes and one of the most common and quoted solutions is the "Ladder of Participation", imagined in an essay by Sherry Arnstein in 1969. There, she evaluates the participation on a qualitative base, rating the process from the lowest rung of "*manipulation*" to the highest one of "*citizen control*".

Beside having set a standard reference in the literature and being a good tool to try to empirically rate what we observe in action, it has been supported by more recent and layered explanations, such as the "Democracy Cube", proposed by Fung (2006), which puts in perspective the relationship between the participants, the authority and power and, finally, the communication and decision modes. This "cube" acts very well to describe, in the intentions of the author, three main ideas which can benefit from the implementation of participative processes – that are "*legitimacy, justice and effectiveness*" Fung (2006). The municipalities often need to fill a gap in one or more of these fields, but surely this depends a lot from the politcal culture and context where such values are discussed.

2.2 Problems: effectiveness and methods

The committment to introduce and make flourish the participative practices in the modern democracies has been ongoing for at least 50 years (Rydin& Pennington ,2000). However, the difficulties that these theories has encountered, since they have been conceived, have been numerous and had slowed their full adoption and implementation by public authorities. Many academics, such as Shipley & Utz (2012), underline ongoing problems that affect the exercise of these practices in the public planning. Disaffection and suspiciousness loom over the engagement through traditional forms, such as public hearings, which are regarded by many as not enough to influence the debate. To support this quote, Leino and Laine (2011) claim that there is not enough "political space" for the citizens during these processes. This could be one of the reasons of scarce interest showed by citizens towards public engagement activities (Leino&Laine, 2011).

On the other hand, many reasons call for the promotion of public participation. The interaction between residents develop the awareness of different interests and the spreading of knowledge through a web of exchanges (Lea, 2016). Other researchers have underlined the widespread will among citizens to participate in public decision making (Shipley&Utz, 2012). Still, is difficult to stimulate an engagement on voluntary basis (Lea, 2016).

In a push for a gradual change from government to governance (Lane,2005), there is an urge to search for a multi layered political framework, which could better link the need of the citizens to politics, through new decision making structures (Van Driesche&Lane, 2002). This progressive socio-political shift needs "*new technologies of governance*" (Rose,2000). Among these technologies, surely the surge of Public Participation GIS (PPGIS) is to be accounted as a potential solver of some of the dilemmas, which planning officers have to face in the contemporary practice.

2.3 PPGIS and its use in planning

Humans have always urged the need for methods to represent and transmit their knowledge about places; they have been regularly using maps to describe places central for their experience from the dawn of the times (Brown&Kytta, 2013). Since then, the technology's evolution has gifted society with sophisticated tools (such as remote sensing and GIS software) which permit to accurately depict the physical places, but lacking at the same time the capability to impress the subjective experiences of the same ones (Brown&Kytta, 2013). Nonetheless, during the last decades this gap of representation has been partially filled by the arrival of the Public Participation GIS (PPGIS from now on) (Brown&Kytta, 2013), which has given the possibility also to non-professionals to be actively involved in the mapping of territories, adding a social and cultural layer to the traditional space representation (Brown&Kytta, 2013). The term Public Participation GIS (PPGIS from now on) was first defined in the mid-1990s as a "*GIS technology which could support public*

participation for a variety of possible applications" (Aberley&Sieber, 2002). This particularly means the possibility to add questionnaires and qualitative data to a geographic referenced map(). The advantages of the software are actually numerous and comprehend a variety of possibilities, allowing for "*interdisciplinary research*", "*community development*" and constituting a management tool, capable of framing a community's efforts in the field of social justice and sustainability among others (Aberley&Sieber, 2002). Surely, one of its biggest potentiality is the attractiveness of the tool to involve swathes of the population that are usually more difficult to engage, such as juvenile and elder people, for instance (Aberley&Sieber,2002). The field of PPGIS is wide and its actual borders are not sharply marked, as its cross-disciplinary background suggests. As Tulloch noticed (2008), PPGIS is a word used to cover many uses of the GIS software in the public realm and only its use in the real world could have revealed the main tendencies. The most recent initiatives have corroborated what he described the main driver of its use, which is to map and use spatial data to provide knowledge about future project land use, involving the citizens in the action (Tulloch,2008). Its use has been promoted in those contexts where there is a need to implement public participation, combined with a legislation that supports the involvement of citizens in such issues (Brown&Kytta, 2013).

The methodology that lies at the base of data collection in PPGIS is taking a random sample of citizens and obtaining data through interviews and surveys, to ensure a degree of representativeness (Brown&Kytta, 2013). However, the real pivot in recent years has been the progressively adoption of digital tools, assisted by web mapping technologies, relying both on proprietary and free licensed cartography. This fact, coupled with customized APIs (application programming interfaces), has permitted the development of a variety of internet-based applications which pushed further the adoption of PPGIS outiside the boundaries of professionals and academics. The consequent extension of the use of such applications has permitted a wide collection of spatial data provided directly by the users (Brown&Kytta, 2013).

As noted before, the interdisciplinary nature of PPGIS is at a center of a conceptual debate – whether the stress should be put more on the technologic core (spatial data software) or on the social value implications resulting from the use of the software (Brown&Kytta, 2013) - community awareness and empowerment. It is noticeable that in Finland(where the governement has pushed the development of a software to be adpoted by municipalities), a compromise has been found on an application of GIS described as "*softGIS*"(Brown&Kytta, 2013), which is a way to explore the built

environment, interweaving the citizens' behaviours and experiences (Kahila & Kyttä, 2009; Rantanen & Kahila, 2009), depicting a much more nuanced urban landscape compared to the "hard data" provided by traditional GIS research (Brown&Kytta, 2013). This kind of software tries to overcome the rigid settings of GIS, introducing options to easily add communicative tools, to add questionnaires and interfaces to display data collected (Brown&Kytta, 2013).

PPGIS can be used to map a variety of spatial characteristics, ranging from landscape peculiarities, passing through transport system, to ecosystems (Brown&Kytta, 2013). Even if many of these categories better fit on a regional planning level (to testify from which" branch of planning" has the technology developed from), most of them consistently overlap with urban phenomena and had been easily apdated. Nonetheless, PPGIS embraces also layers of data not tightly connected to objective categories but also to subjective ones: here lies the true potential of this approach, which would permit to locate and track impalpable phenomena, that would be otherwise so difficult to track but at the same time, essential to understand the meaning and the quality of a place to the people.

Long to be just data collector, PPGIS embodies also another important task to participation, that is the one of being an arena for confrontation. How the "public" is being conceptualized is essential to understand the goals but also the limits of the participation achievable during the planning process. The range of the number and typology of participants affect, at the same time, the quality of the data sampled, incurring in the risk of showing a consistent bias (Brown&Kytta, 2013). If the goal of the PPGIS is to act as a kind of informal governance tool, working to express opinions on the future of land management, then it should represent the plurality of stakeholders that take part in the process. The definition of Schlossberg and Shuford (2005) comes to help in clarifying what public finds place in this category: all the people affected by the project, ranging from decision-makers to simply interested individuals. They include also a "*random sample*" (Schlossberg and Shuford, 2005), which should represent the general will of the people; that's important to observe, because such sample may not be present in all kinds of PPGIS, leading to fuel further doubts as to which kind of "public" is PPGIS really directed (Brown&Kytta, 2013). The stress on the inclusiveness of the tool is to avoid the danger that the data collected are representing just a portion of all the opinions, fuelling a distorted portrayal and getting in trouble with possible biases. Nonetheless, an open platform, which publicly displays the data obtained from public sources, could represent the best antidote to the risk of a derive of a participation process that is actually steered by the most powerful stakeholders. It's clear also that the most participated initiative, the best is the probability of obtaining a fairer description of what a public discussion could be in theory. Hence, the main

challenge is to bring on board the "*silent majority*" (Brown&Kytta, 2013) to the process and understanding what reasons could mobilize them the most.

Another factor to be taken into consideration is the placement in the right phase of the planning process of the PPGIS, which could tell also much about the function the planners want to give to such tools. As Horelli (2002) states, in the participatory planning process there are roughly five major steps ("*initiation, planning and design, implementation, evaluation, and maintenance phases*") and, actually, PPGIS is often seen as a suitable option for the first phase, when the data provided by citizens are a precious source of information to make an initial assessment of the plan. The value of the information at the beginning of the process risks becoming an impediment to the unrolling of the process itself: the citizens, who voluntarily engage, are expecting that what they say will be taken into account and, therefore, their expectations are high. Hence, for meaningful participation, planning officials must be clear on what are their goals and what they would like to achieve through the process. The danger of implementing just another tool for consultation, rather than active participation, is really present (Brown&Kytta, 2013). It becomes crucial, then, to elaborate some form of assessment of PPGIS and to identify some key parameters for evaluation. Brown and Chin (2013) recognize, for instance, in "*outcome*" and "*processes*" the two categories capable of giving us a reasonable perception of the participation quality. [•da completare]

Historically, survey to understand the effectiveness of a planning process has always been scarce, mostly because it is regarded by governments as an expensive step (Sewell & Phillips, 1979), which could bring to surface also public dissatisfaction with the outcome of a project, nurturing further political dissatisfaction.

The real challenge of what PPGIS should provide is, thus, not only a common process to define the premises of a planning project through the data collection, but that a discussion could flourish from the evidence of that (Brown&Kytta, 2013).

2.4 The interplay between data, participation and the "smart city approach" in planning

The discourse about the relationship among citizens, data and cities inevitably brings to the discussion the thematic of the "smart city" or, at least, requires to define such concept and its problematization within this research. The relation between the smart city and the urban planning theory has always been loosely described and many have questioned if the concept of the smart city

could be comprehended as a real urban theory. The focus has always been on the ability to closely monitor and acquire data related to phenomena affecting the quality of urban life, like waste management or traffic data, but included also more sensible themes like the security of public spaces, with a large displacement of CCTVs, posing questions about the management – but, more importantly, the mismanagement – of such important data. Many questions have arisen on the fact that the term "smart city" was more of a marketing word to push the adoption of such technologies, rather than a real philosophy to develop the city, pushing for the adoption of digital technologies which regard more the sphere of power and control the urban areas, instead of being dedicated to its development. With such understanding of the smart city concept, it's clear that the relation between the citizens and the management of the urban environment is univocal (Lissandrello, 2021). The citizens are a potential source of data, which can be collected and exploited by municipalities, through the use of third-party softwares (Wilson et al. 2019; Baker et al. 2007; Kitchin 2015); they are not seen as interlocutors but, on the contrary, in quite a technocratic way, they are put under a dissimulated "surveillance" through the constant stream of data they provide. Is this a real "smart" way to use data? Fortunately, within the urban planning field, new tendencies are emerging on how to improve the use of data, unlocking their potential, which is manifest especially if these data can be placed as the core of a shared project. As said before, knowledge has always been a central issue in the management of urban planning process, so the production of data and their management can have a big impact on the process, that could be potentially also disruptive of the trust between the stakeholders, if mismanaged. This possibility should not anyway refrain the cities' governments to pick up the opportunity to evolve and radically transform their relationship with citizens, through the use of digital technologies. As technologies challenge and modify the way we understand and interact with the world, so the planning practice should embrace and adopt them, rethinking the traditional ways, through which the discipline used them in participation process (Potts, 2020). One of the research branches, which is calling for a tighter cohesion of the urban planning field with ICT (so called "Planning 3.0"), claims that such use of ICT within the discipline has been made possible by the recent developments in the information technology sector (the same ones who allowed to lead to the actual Web 3.0), which enable the users a greater ability to communicate and interact through social web platforms. The diffusion of the digital media - and of the tools to access them - poses a question about the meaning of the citizenship in the contemporary city (Lissandrello and Vesco 2020). Anybody who can access a web platform, (like a PPGIS one, for instance) could be seen as a citizen taking part in the planning process, from the urban planner's point of view, thus contributing to different visions of the urban spaces. In this regard, the technology applied to the planning discipline may become a driver to recognize diversities, identifying the different realities

which populate our cities, especially the ones which could be marginalized and not recognized by official authorities. All of these new meanings can only be obtained if there is an effort to change the current practices, shifting the paradigm to a co-management of the production of the data, their interpretation and their use in a shared design process.

3. Practitioners stories

The first story has its the focus on the city of Kristiansand, in Norway. The city, alongside with others from Denmark, Sweden and Finland, is part of a project called Nordic Path, partly funded by the NordForsk, in which several universities and research institutes in the Nordic countries are involved as weel as companies, with the coordination of the Nordic Institute for Air Research (NILU). As the project's website recites, the goal is to "*establish a new model for citizens' participation and collaborative planning in the Nordic countries*" (NILU, 2020). To achieve the desired result, the team investigates the air quality in the partner cities (Kristiansand, Aalborg, Gotenburg, Kristiansand, Lapperranta) through a network of low-cost sensors, operated by the citizens and, then, to integrate the data with official statistics about air quality (NILU, 2020). Moreover, the data collection will be supported by a PPGIS software, Maptionnaire, provided by a company (Mapita), to enable the citizens (who usually do not participate) to be involved in these activities also virtually. In this way, the planners' hope is to be able to reach a wider audience and, therefore, securing more *"quality, diversity and reliability"* (NILU, 2020) of the answers gathered.

Two professionals of the municpality of Kristiansand, who are involved in the Nordic Path project, have been interviewed about the topic of participation, use of PPGIS and their outlook on the integration of digital tools in a more organic way in the planning system. Since the project has recently started, the discussion revolves around the current practices of public engagement process and the planners' reflections over the projected use of PPGIS methods.

3.1 Planning with citizens on climate change policies (Krisitansand)

Solvor is working in the Research and Innovation Project Department, which is part of the Environmental Protection and Climate Change sector. She is currently the Project Leader for Kristiansand Kommune in the Nordic Path.

Solvor tells how the strategy for climate policy was born in Kristiansand and the ideas on how to bring to reality these ambitions, through the active participation of the society. The process to concieve a climate strategy and implement it is complex, since many internal experts are involved, considering also the private actors, such as businesses, and the citizens. If it is true that the primary goals are set by the experts, the second part of the process must refer to the wider audience possible, to get their ideas and think about what is possible to implement and at which cost. The municipality's posture should be collaborative, in the sense of tracing a path but then this path must be walked together with the rest of the stakeholders. There is already an interest lying in the society for this matter and the business sector, for instance, has already put pressure on the city's government to communicate clearly the goals of the strategy, becuase they want to participate and tell what they can offer in relation to them.

The problems anyway arise, as usual, when it comes to participation and the designing of the engagement process

Anyway, the most difficult part is always to engage the citizens; many people may think that their participation won't change anything.

She remarks that it is a municipality task to reach them from the initial phases of the process and make them feeling necessary and decisive since the beginning. This goal can be accomplished in a number of ways, but Solvor states that, overall, participation is boosted if people can feel that the are engaged on a matter that they feel close. It's easier to engage for them if the citizens feel they are engaged them on a matter that they feel close, that has meaning for them in their daily life; they don't care too much about the overall goals. So it could be whatever, but they need to be touched from these changes. In this regard, the Nordic Path focus on the environmental issues is something good to engage citizens, because everybody feels affected.

The Nordic Path project is an opportunity to stimulate the people directly to take initiatives, declaring openly what they do want or not. But it is also an opportunity for us to redraw the hierarchy of these processes. So, the citizens should be "on board" since the start of the plan, because, otherwise, when the process has gone too far, it's too difficult to change the plans.

This is why the project focus is on the air quality: this environmental parameter, related to a global issue, can be easily used as a litmus test to verify the quality of the local environment and, at the

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same time, it is something that affects all of the citizens, regardless of census, gender, ethnicity or political orientation. Still, choosing the right topic as the leverage to stimulate participation is just the first challenge that planners have to face in this process. In fact, Solvor urges the adoption of a completely rethinked model of collaborative participation to approach the policy making on climate issues.

For her, the biggest limitation is the current dynamic taking place between the citizens and the municipality. As she puts it,

when the municipality asks the citizens about what they would like on such themes then, they may answer that they expect the municipality to inform them what to do. Citizens may not feel too much responsible about such big and global goals. They may feel they can not leave a mark on such important subjects.

This awareness stems a reflection from the planning officials about the bonding element which can better show the relationship that ties the global and the local to a concrete urban solution, able to effectively tackle the problem. In Kristiansand, the chosen topic is densification of the urban environment. The compact city has been reputed a good "carrier" of different stances, since it is a topic that merges different facets of the problems linked: speaking about air quality, we can speak about transport planning and, from that, also about rethinking build environement, with better isolation and distributions of residential areas. So the planners are designing the surveys keeping in mind this fact, trying to get information from the citizens about the favoured quality of their sorroundings, with the aim to incorporate them in the city master plan. Nonetheless, Solvor remarks that another crucial passage is the ability of planners not only to translate the citizens' indications on the strategical level, but also on the other way around. In fact, when a master plan is set, it is fundamental to transform the indication of the plan into meaningul actions on the smaller scale plans, where actually the residents's opinion matters the most and where much of the feedback, especially on small details, is gathered.

The discussion then goes on talking about the strategies to bring on the field to actively engage the citizens. Until now, the process has just started and lagged behind especially for the pandemic situation

So far, in the Nordic Path project, we have not discussed the goals directly with citizens and now we are setting up a second questionnaire. At this step, it is more a collection of information and inputs from citizen, not a real collaboration with a dialogue. However, it's important to use this PPGIS to have a comprehensive view on what are the opinions of people in the different neighbourhoods. […]. Also, Maptionnaire is a great way to reach more people, rather than a simple approach based on workshops, especially because is not possible to organize workshops for everybody in the municipality.

The PPGIS is here seen as another tool to fill the "toolbox" of the professionals in charge of the participation process. The planner raises a warning. Even if she judged the PPGIS as an helpful aid enabling to extend the engagement activity on a wider urban area, even without physical meetings, therefore widening the audience of interested people. She reflects on the representativeness of the engagement generated by such a tool

It is also important to think about how we recruit people in these processes. We should locate them and then go directly engage them where they can be reached, also online. Infact, there is often the risk that, if we make an open call to join and reply to a questionnaire, many people won't answer, or, alternatively, the ones who answer will be just a little portion, who is already interested in participating in such activities. So my worry is that we don't reach all the citizens we should have reached. For instance, people of recent immigration are a part of this audience who may not be engaged, while they should be part of it.

The problem lies in failing to include some parts of the society which are already lacking representation in such processes, such as people with an immigration background. This is why there is the need to target specifically some cathegories of the society for the data to represent a fair depiction of citizens' will and needs.

If we want a more representative sample of answers, we need to address directly a group of people who will give us representative information. During normal master plan drafting, they had a focus to engage some groups of people. We still have not discussed in which ways we should address citizens during the Nordic Path project.

Solvor feels that there is broad space to make things better on this side. She describes the current engagement process as not adequate enough, constrained by bureaucratic process, but, most importantly, it does not involve enough "diverse" audience, thus compromising the reach of a comprehensive feedback from all parts of the urban population. She underlines the need of differentiated approaches to balance the problems of lack of representativeness, derived from the adoption of solely one method, either being open or targeted one. There are examples of different strategies implemented in the field to combine the benefits of online surveys and physical participation in workshops. She quotes the case of Trondheim (Norway), where

municipality is working to get a more representative selection of citizens to work with them. It is another method because they want to educate the citizen and inform them, so that they can have enough knowledge to make an informed decision, because they have a more comprehensive knowledge of the problem.

Regarding this problem, she looks favourably at the use of the Urban Living Labs in the framework of the Nordic Path Project. The Urban Living Labs are places set up by the municipality, bearing the function of meeting place to discuss, debate and inform about the different urban project taking

places in the city of Kristiansand. Regarding the Nordic Path project, they have been acting as both places of discussion but also feedback during the collection of the data about air quality. She tells that

the main purpose [of Urban Living Labs] *is the collection of data. But when the problems arise (like for instance the air pollution derived from wood-burning), these places become not only a spot to inform, but also to find solutions together with citizens. We imagined bringing the men of Fire Brigades, so that they can inform the citizens and tell them about the best ways to improve the quality of burning and also to tell them about incentives to change their wood stoves. If we want a comprehensive solution, we should include all of the sectors involved in the problem, such as wood and stoves sellers. Afterwards, we want to go through the solution and implement it in our action plan, to reduce air pollution levels. From the discussion, multiple topics could be tackled. And once the citizens have been sensitized on the topic, and their problems have been faced with concrete solutions, then we may also start to talk with them about transportation planning or emission of green house gases.*

3.2 Planning walkability together (Helsinki)

The city of Helsinki has been experimenting since 2013 with the management of public participation trough PPGIS methods. The first noticeable experience has been the drafting of the strategic plan of Helsinki in 2050. The motives at the core of the plan was a study, that predicted a sharp rise of the city population by 2050. The dimensions of the city would not be able to sustain such a growth and, therefore, it was decided to start a process to identify a strategic answer to tackle the challenge faced by this scenario. The discussion about how the future city would look like and what were citizens' desires had generated an extended public consultation, articulated in many phases for the duration of one year. The main aspect was the possibility given to the citizens to choose the mode of use of the land during the planned expansion of the urban fabric, deciding which areas were preferred for residential building rather than for parks and other amenities. The experimentation of PPGIS methods continued in 2017 with the drafting of the walkability plan for Helsinki.

Generally speaking, the municipality of Helsinki shows a great sensibility for public participation and citizens engagement in all the phases through its communication channels. The strategy proposed is to use innovative digital tools for communication with citizens along the engagement

phase, but also after the end of the project, favouring the active proposals from the citizens' side with a web platform. The municipality aim is to stimulate citizenry's "*know-how and knowledge*" and its approach seeks to promote citizens' participation through three main online channels: a website to report opinions (Kerro Kantasi, "Voice your opinion"), a general feedback on the municipality website and Omastadi, a digital platform for participatory budgeting.

The research focused on another plan, started to be drafted in Helsinki from 2018 on, about the topic of mobility by walking. The plan was especially made to give a general framework and development indications on the walkability issues in the city of Helsinki. To do so, citizens have been asked through the use of PPGIS(Maptionnarie) to give inputs about problems and routes of their daily walking activities in the city. To get a deeper understanding of the process, the practitioners's stories of Anu Hämäläinen and Henna Hovi, both urban planners at the municipality of Helsinki have been taken into consideration to get a wider knowledge of the issue.

Henna Hovi is an urban planner at the City of Helsinki since 2017 and she has been working actively at the drafting of the Walkability Plan. She tells that

the walkability action plan was initiated by an unofficially group of professionals, planners who were interested and they were advocating for this kind of topic. They had the idea and, at the same time, there was a student at the municipality completing a thesis on the same topic, comparing the strategies of Copenhaghen and Stockholm.

Even if a cycling plan was present since 2014, no such documents were provided for walkability. The lack of coordination between existing projects about the improvement of the walking environment in Helsinki sparked the planners' interest and urged them to coordinate with municipality to find a solution.

During the reflection, it was recongnized that walkability is a cross disciplinary topic that goes beyond the borders of architecture, landscape architecture and traffic planning. When they started working on this strategy,

it was clear that this needed to be done as a cooperative effort of different services, the problem of walkability is forced into the existing gaps of these disciplines and, in the end, nobody feels responsible to do something for it.

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The participation came into the project very soon. Through a literature review of the past studies on the issues, they quickly realized that there was a complete lack of data about walking issues outside of the historical core of Helsinki. Moving on from this consideration, she says that the first move was to set up a questionnarie that would span through the whole urban extension of Helsinki, to get a more complete database. The next phase was to organize workshops, mostly towards planning professionals to have a more technical feedback from them. She recalls that also another event was organized to illiustrate the results of the survey and collect opinions from people that we could hear what were their opinions but

there were just two people standing at the presentation, and of the two, one was an ex-employed from the municipality. These strategies and plan usually do not interest so much the public or the lay-man. It is much more useful to have workshop environment and strategies with professionals who know the process of things - because this is what strategies do, they guide the processes.

She says that the residents are not so interested in the city wide development, and that they are more into giving small scale feedback, when asked to do so. at least we found in this project. At the time of the workshops, the plan was already endorsed by the municipality, so that the group could access the financial resources to hire leaders, get the project accepted and begin.

Then to talk about the participation process itself Anu Hämäläinen, a participation planner from the Urban Environment Department of Helsinki, take the leads. She says that it was one month long survey and the participation yelded 1600 respondents, who marked more than 8700 routes across the city. The data gathered included the ones on pedestrian routes and about the reasons why the people walk along some certain routes. The survey was available in 3 languages, Finnish, Swedish and English and it was available also on mobile phones. This represented a reamrkful accomplishment in her view because the information was gathered in a really short time window. She tells that survey was not only useful for data retrieved but also because

it has highlighted some areas that had no marking at all: also these areas show us interesting data about how citizens view and use the urban space, so also these zones will be taken into account.

She was supportive of the fact that making the survey available also on mobile devices had opened the possibility to get in touch easier with younger population group, as the data suggested. Nonetheless, she was aware of the fact that it is difficult to reach out to people coming from abroad, cause most of the times they are not interested in urban planning but more in other topics, such as housing, for instance. Some work is ongoing to understand how to better engage this populaiton group. The challenge is anyway hard because is not something related only to language anyway, but also to culture, since most of them do not know they can take part in these processes.

Henna states that problem lies in the fact that online methods gather more of a crowd that is already interested. She adds that targeting young people and generally kids is one of the most challenging task today in the participation discipline. *Youngsters, in general, are quite hard to reach and people who generally say do not have a close tie to the place, like people studying, people living on rent. I have the feeling that people who own apartment have a greater place attachment. While people renting, have little less interest in the area. This was reflected on the survey's results, where we got more replies from neighbourhoods with a higher share of homeowners, rather than from the areas where more people live on a rent.*

3.2.1 Helsinki Model for Participation and Interaction with citizens

As noted before, the municipality poses a great stress on the engagement of citizens. In 2019, Anu reminds that a series of events ("the Helsinki Nights") for the Helsinki residents was launced. The goal of the initiative was to maximize the share of participants, gathering in a single event different urban projects that were pivoting around the same urban environmental topic. The initiative proved succesfull but it had to be stopped because of the pandemic. She tells that, anyway, the events were just translated on the web online, trusting the fact that people wpuld have partipated anyway, since the statistics told them that more of 60% of Helsinki residents use the municipality web portal as a source of information. The slogan of the initiative was "*Know what's happening in your neighbourhood – Participate from your coach!*". The planners were amazed by the turnout of the events, with hundreds of particpants through the 14 "web nights" organized. During these events, the participants could directly chat with the planners, commenting the projects. She notes that

[…]we see Helsinki residents as city users and information provider, they are expert in city living and participative producer of local knowledge. Resident is also a customer citizen who is an active product developer in participative urban planning.

Anu remarks that planners don't know everything in the city so she believes in cooperation with them. About the choice of the tools, she notices that

it is a matter of what you need to know. First, the problem must be defined and then the best tools for the task are chosen. The methods and ways of engagement may vary but the goal of all the action is still the same, that is to reach out to the citizens.

Hovi agrees with Anu. Choosing the right methods to get the data you want is an essential part of the process and should be carefully made. Speaking about the possibility tof opening decisional spaces in the practices for citizens through the use of tools such as PPGIS, she notes

these survey tools are more tools to gather data rather than democracy tools.

She goes on explaining that there are two different forms of participation from her point of view. They could be roughly divided in collection of data in order to understand the people ass users who are involved in city-making. Then there is the participation process, legally binding, that is included in the building and land use law. Along this there is also the political context, and the politicians which are elected by citizens also because of their views on the city development. She has some doubts also about hte representativeness of this kind of digital surveys and she recalls about experiments made in Finland and Canada, where some citizens boards were selected, composed by a group of around 10/15 people of different social groups so that it could represent more equally the demographic structure of city. She strongly opposes the use of PPGIS as a more organic tool for strategic planning

[…] *But, no, absolutely not, I would answer no to the use of a tool like a PPGIS or any other online survey tool to manage this issue, because you will always need the planners to chew the information you got from the citizenry, since there are always conflicting views on each other. Consensus is basically a kind of utopic idea, that we can not reach. It is more on the targets the planners should aim at but not reachable in practice.*

You need to find a way that is important to recognize that, in the modern planning practice, it is virtually impossible to build or change parts of the city in a way that would be good for everyone.

She emphasizes the problems of such a consultation resides in the fact that

[…] *if people are let directly voting where new constructions should be placed, then what will be the role of urban planners? These people are not land user or transit planning specialists, so the user do not necessarily know what is good for the collective good and, of course, planners do not know either, but planners' job is to elaborate these information into something that could result in a clear choice that emerges through solutions in a political/strategic view.*

These actions reflect the democratic process behind these strategies. To fullfill a democratic way of planning, we need to showcase more than just how the strategy has been politically proven.

3.3 The planner's actions for the definition of a land use strategy (Kristiansand)

Christina Rasmussen is an urban planner at the Planning, Building and Surveying Agency from Kristiansand Municipality. She is part of the team of professionals from the municipality which is designing the survey with PPGIS. She explains what are the dynamics of public participation in the city, how strategical plans are conceived and what she expects PPGIS could provide to the professional practice.

She says that the current legislation in Norway states the validity of the strategic vision for the city is 10 years, but every 4 years, when elections are taking places and the new city government is elected, the plan could be reviewed. Actually, this is not often happening, as the re-elaboraiton It takes a long time.The municipality is currently engaged in an even more demanding process, because of a merging with other two bordering municipalities, so now we are merging our plan with 2 other municipalities to have a final one. This process involves the merging of the land use plans but also of the strategic ones.

Anyway, the goals of the strategic plans were not set by the political class alone. At first, we were looking at existing plans to acknowledge the past work and then, during the Autumn of 2019, there was a big process to understand what were the people priorities in the different thematics, to understand the topics to engage them. Christina tells that

 the municipality wanted also the UN Sustainable Development Goals (SDG) to be implemented into the strategic plan. This, of course, need to be done keeping in mind the context of Norway: it would have less meaningful to implement those related to hunger, for instance, while we care a lot more about environmental pollution and quality of life. We illustrated how these SDG affect the strategic vision.

She recalls that the tactic of the municipality was to propose public opinion some topics of discussion to the public, feeding the debate. The municipality acted to

 make the citizens discuss the topics together with friends and relatives, chatting together in their houses, for instance. The input and what they discuss remains to them, but the point is that the citizens should have their mind clear and get an opinion by themselves, before entering the participation process.

This is just a tactic to stimulate interest and debate among them. The municipality also tried to collect people's opinions directly from the territories, asking them to reply to brief questionnaires about the qualities of the neighbourhood, handing them directly at the bus stations.

The political level actively worked to increase participation, also because the process of merging municipality has been subject to criticism from many citizens. So the politicians wanted to have an increased dialogue and closer contact with citizens about that matter.

There is a department in the municipality called "The Citizens' dialogue" focused on the involvement of representatives of different groups such as young people, elderly, disabled people to create better communications between the political world and the citizens' requests.

The standard structure of participation relies on the neighbourhood councils, with elected board members from citizens. It is an easier option to refer to them as a first step, but also for feedback, when you have to set up the consultation and set the path. However, she thinks that the scale of planning really affects the participation too.

When we are working on the municipal plan, especially with the part which has indications about participation and goals that have to be achieved, there is a public hearing to present it. It is easier to inform directly the neighbourhood organizations of the event. But if we are talking about local plans, which are more detailed, it is easier to involve citizens, because you know already who is gonna be affected by the decisions.

In the local plans, there is a broader invitation rather than on strategic plans, because the area affected by the plans and interventions to be done are already defined. This means that also the stakeholders affected by the plans are easier to be identified and, therefore, to get in touch with more people. Is part of the planning ideology that you would like to have as many responses as you can when you present a plan, because it would affect their everyday life, even if is an awful plan. Planning should be always a very democratic process.

She indeed, sees all the problems of the participation organized on such basis. In fact, this system relies a lot on a network of organizations, that are democratic on the structure but not so representative, especially for some population segments, who may not have enough time to afford to follow these processes. She says that, typically, all the social-economic groups with low income or low educational level, may be not part of it.

In this regard, PPGIS may be a good try to involve sectors of urban population that were not part of engagement before. Still, also these digital tools present problems about the representativeness of different voices. It is true that, potentially, they could reach more people but it is not something granted. Targeting marginalized people of society, in fact, may regard not only communicative issues, but also cultural problems, such as the feeling from some parts of the society, who do not think they have the right to be part of such processes, for instance. It is surely worth exploring it but any participation process should be aware of its weaknesseses. This is also why, during the drafting of the strategic plan, the planners in Kristiansand have been using different methods, because they need to get in touch with several different people and to do so they need different communication channels. Some people, like elderly ones, could be excluded by a technological barrier if PPGIS is

the only method use, for example. But that is not always true, as Kristiansand municipality has been actively using video calling to keep engaged elderly people during pandemic times.

She states that these recent times of pandemic have been a test bed for digital participation. The consultation for the municipal plan had just started, so there have been a few digital meetings, mostly to inform the public. These experience told us that the municipality is also lagging behind these new technologies, because there is a lack of digital skills to do a proper virtual engagement. That is the reason why participation could not be entirely translated online.

Beside that, Christina really thinks that digital tools should be seen as something complementary to traditional ways of engagement. There are interesting features about visualization of things on a map, useful to spark interest in the audience and to trigger their attention, more than simply answering a questionnaire. On the other hand, her personal view is that a municipality can not work for a community and ask for feedback without showing its face. She ends saying that there is a personal trust that must be built between the participants of a process that can not be replaced by digital tools.

4. Reflections on the public participation and the use of PPGIS

The practitioners' stories presented here depict a typical situation in the contemporary planning discipline. Even if the legislative context embraces the citizens participation on a formal level, the structure of the engagement is left to be implemented to the initiatives and the willingness of the planners of each municipality. This lack of formal structure is a "mixed blessing" because, even if there is a risk that the public participation could be left lingering on the lowest level, just as a bureaucratic formality to be completed, on the other hand, it is an opportunity to act for the planners who really care about this problem, since it lets them to tune the methods of engagement on the needs they face. It represents also an opportunity to test different solutions, and, among the others, also PPGIS methods.

The primary problem emerging is undoubtfully the one of representativeness of a very diverse urban society, which is a reality for many Western cities. The dilemma on the forms of consultation is great, because the use of digital tools and PPGIS may offer a potential wider reachable audience, compared to more traditional practices, but the risk of involving, actually, just a very narrow part of the population is high. Whether the PPGIS methods have been targeting citizens who were already interested in planning, or simply people who may be more keen on the use of digital technology, the main problem is to find a tactic to engage, in a comprehensive way, much of the society. From the tales previously exposed, it seems that the use of PPGIS methods has to be carefully thought before its employment in the process. The evidences tell that, as a tool alone, is not enough to ensure a representativeness of the population, but, on the contrary it could exposed to the same shortcomings of more traditional ways of engagement, that are exclusively targeting some population groups. But they may create also other barriers, represented, for instance, by the gap in the digital skills, which may affect especially the elderly population. Thus, it is appropriate to give the right weight to the use of PPGIS methods within the general framework of a participation process, which favours a combination of complementary methods to fulfill the task of accounting for diversity while generating a constructive dialogue.

Surely, PPGIS methods seem to be a technique to easily identify possible sources of conflict directly on the map, whether citizens may have different visions about future desired options for an area, for instance. This can contribute to the capacity of the planners to predict bottle-necks of the process, thus knowing in advance where to put their effort to ease confrontations.

The role of planners, so, seems to be pivotal in the recomposition of the different stances of the stakeholders into a cohorent action plan. The citizens's opinions, who are asked to give indications about the strategies of city development, in the broader sense, are fragmented by the rifts of insufficient knowledge and communication. The planners's experiences show also that cross-disciplinary planning will be more needed in the future, as soon as the inadequacy of the previous solutions adopted emerges, as the Helsinki tales prove. The evidences raising from the stories of Kristiansand suggest that is mandatory to act on two ways to improve the effectiveness and the quality of participation: enhancing the share of knowledge between municipality and the citizentry and differentiating the channels of communication. Without these two actions, it is difficult to think to planning as a democratic practice.

It is possible to make an assessment on the current process of engagement envisioned by the planners of Kristiansand, using for instance the famous "Ladder of Participation" from Arnstein (1969), that could seem an old tool of evaluation but, on the contrary, is still capable to give a rough estimate of the balance of powers among the participants of the process. It is fair to say that the current situation described lays still in the field of "*tokenism*", between the steps of "*informing*" and "*consultation*" (Arnstein, 1969). Another perspective of the evaluation may be through the lenses of values such as "*legitimacy*", "*justice*" and "*effectiveness*", as proposed by the democracy cube of Fung (2006). One could argue that these three characteristics are tightly connecteed and that a plan should reflect, at the same time, all of these qualities or none of them. As for the Kristiansand case, it may be too early to make a comprehensive assessment on the entire processes, since both of them are still in their early steps, but at least the posture of planners may be evaluated in such terms. It is remarkable the will of planners to widen the audience of the participation and sensitize the citizenry on the problems, supporting the search for a solution with the data co-created with citizens, as in the goals of the air pollution study. This is surely a step towards the right direction to rise awareness and trust among the ones participating, thus creating legitimacy, that is nothing else than a situation "*when citizens have good reason to support or obey* [a policy]" (Fung, 2006). The topic of the ways of production and use of data by public authority deserves more attention, since, if put within a framework with a clear objective, it can help strenghten the trust between the stakeholders. In this particular case, the co-production of data realized through the network of Urban Living Lab of Kristiansand, increased the sense of responsibility and commitment to the to engagement process, favouring the creation of a shared knowledge. The same claim can be made also towards PPGIS, since their theoretically aim is the production of a reality – at least a collection of the realities lived by each users – that can be then shared and used as a basis for the construnction of a common dialogue.

Still, the goals of participation set by the Kristiansand municipality for the climate policy-making are ambitious, if the municipal officials are really aiming (at least in their intentions) at placing the municipality on the same level of the other stakeholders (citizenry comprised) during the debate, to develop a more collaborative and cooperative action. To make such a shift on the ladder, anyway, it would mean that the municipality will inevitably relinquish some of its political power to the citizens' advantage. Even if the planners have not talked overtly about this issue, this needs to happen in some ways, if a real partnership has to be achieved. In the practitioners' tales collected, it seems that the leitmotif that links the professionals' opinions is the one that giving some sort of "direct control" to the citizens over the definition of too many aspects of a strategic plan could be risky or even counterproductive, creating more conflicts. Another common issue in all the sectors encompassed by the interviews is a general lack of specialized knowledge from the public side, about the specific issue covered in the different processes, whether it regards environment or transportation. This not only affects the effectiveness of the debate but prevents the citizenry from joining a review on the plan, as happened with the walkability plan in Helsinki.

The planners' experiences tell us that, even if the trend of decentralization of power within the municipality is regarded as an inevitable process, still it will take a lot of time to realize it; the forms of power sharing need also to be defined for every case, as they greatly depend from the social contexts. The shift of power has not to be intended as a direct transfer of political power from the municipality to the single citizens, in an exerxices of direct democracy. It is fair to imagine that such shift could happen actually in a very limited but still effective way. Many forms can be imagined and their "political weight" may vary, also in relation to the geographical scale at which they are exercised. One form could be the participatory budget for the neighbourhoods, a measure adopted in Helsinki, for instance. In this case, citizens would have some resources from the municipal budget to realize a selection of project proposed (and voted) by the citizens themselves. But would it be fair to ascribe this policy to the sphere of "*citizen control*", as Arnstein would say? Even if it is, actually, a delegation of power to individuals, this approach seems still far from a control exerted by the citizens over the strategic future development of a city, even through modern digital tools.

On this aspect, PPGIS methods seem to fail at the moment as a "revolutionary" tool that could offer a solution to a more decentralized form of governance. On the contrary, the different experiences of the professionals interviewed tell that they can be good instruments to collect and visualize data, contributing to the creation of a knowledge of the phenomena studied on the territory easily

sharable. These methods may also open up the engagement process towards some population groups, such as young people, who traditionally are less inclined to participate. In the future, it is plausible to see a wider integration of these methods into hybrid engagement processes, encompassing a mix of "face to face" and virtual methods, which can be complementary.

Conclusion

The challenge of public engagement in planning processes is an ongoing problem that constantly changes with the evolution of society. The need for research of new approaches and methods remains a challenge for the planning practice, which will be pushed to a constant renovation in a quest to find updated solutions.

The communicative planner, working on the field, is the researcher in charge to give practical answers to the discipline's problems regarding public engagement. The baggage of its experiences, developed in the daily practice, is the only lens through which the qualities of the different theories and approaches may be compared and evaluated. The use of Public Participation GIS is an oppurtunity that must be seized and better incorporated in the planning practice, to keep the pace with the technological evolution, whose benefits have often been neglected in the past by the planning discipline. The possibility to reach out to more people and to gather more precise data about citizens' behaviours and desires is a wonderful opportunity, but it is not enough, alone, to radically change an inaccurate engagement process, if it has not been carefully conceived. It is up to the planners' sensibility and ability to gain advantage of these new methods, with a renovated effort to reflect on the best ways to combine and adapt the old processes to accomodate these new tools.

Regarding the possibility of construction of new ways of shared urban governance, this could be only realized with a strong backing from the political class, which is the real administrator of power in these public arenas. However, even with the best intentions, the challenge to find the right framework, through which the different parties should collaborate, is still to be faced. Further experimentations on the shape of such framework, along with a constant education of the future stakeholders, must be carried out to reach meaningful outputs.

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Appendices

Appendix A-Interview with Solvor Stolevik, 6th May 2021

You are working in which sector of Kristiansand Kommune?

I am working in the Research and Innovation project Department, at the Environmental Protection and Climate Change sector, as a Project Leader for Kristiansand Kommune to the Nordic Path.

How these strategies are made? Who sets the goals?

We work among the municipality with different experts internal municipality. But we also have a strategy for business and citizens, to see how we can work together and to listen to what the municipality should do in their review. The goal are set by the experts but then the municipality wants to discuss with the rest of the society the best ways to implement the strategy. A further step of discussion is the posture of the municipality that, should, rather than sets goals a priori, listen to what the other stakeholder in the society could do. We got input from businesses that asked the municipality to be clearer in the communication of the goals, asking the municipality to take the lead.

What is the best phase to involve citizens in the process?

[11:45] It's always difficult to engage people, it's difficult to make them interested in municipality business and there is always the feeling that nothing happens. We need to make them realize that their opinions matter thus they need to be part of the process since the first steps. It's easy to engage for them if they feel they are engaged them on a matter that they feel close, that has meaning for them in their daily life; they don't care too much about the overall goal. So it could be whatever but

they need to be touched from these changes. The focus on environmental issues is something good to engage citizens because everybody feels affected, especially young people.

Climate change is something that affect the health of people, so is it easier to engage them in Nordic Path project?

[20:00] I think that the Nordic Path project is an opportunity to stimulate the people directly to take initiatives and tell openly what they want, because sometimes the citizens just have to decide what they want and then the municipality should make it, while in other cases it is the municipality that needs to take a decision. It is important that citizens are taking on board since the beginning because when the process has gone too far, it's too difficult to change the plans. I think that actually we have a long way to go to actually work together with the citizens.

How do you think to do a more meaningful collaboration in the municipality?

[28:30] There is already a system in land management planning, where the municipality has to get back to the people who got involved and report what has been decided together; anyway, I think this could be improved. I think that we should also be careful in which processes we can involve citizens: of course, it is easier to be transparent and give power to the citizens, especially when the budget is provided by other organizations. But to work on such themes, like climate change policymaking, we should choose a completely new approach: **[33:00]** The municipality can not decide alone which are the goals and how to get there. Right now, there is this dinamic so that, when municipality asks the citizens about what they would like on such themes then, most of the times, the answer is that they expect the municipality to tell them what to do. There is like a sense of not feeling too much responsible about such big goals from part of the citizens. They feel they can not leave a mark on such important goals. We are working to connect the Nordic Path project to the planning here in the Kristiansand, so that the project outcomes could be integrated into the masterplan, in the future.

What is the role of Urban Living Labs in the definition of the strategy that will lead to the definition of Master plan?

[35:40] Yes, this is part of our job. It is a difficult task because the municipality has a strict way to proceed [caused by the legislation]. One topic we are working on to bring together the different stances is densification. We are asking for opinions from citizens about it and collecting them through Maptionnaire. The thing is that the topic of densification is strictly related to transportation planning and, thus, to the air quality. So we are trying to get some information from the citizens about the area where they live, the surroundings, with the goal to incorporate them in the master

plan. But I think that the smaller scale level plans should not be overlooked too, it's important to integrate their observation in smaller level too.

Who decided this goal of densification?

[38:50] The municipality decided. We are setting up a questionnaire and of course, at this step, is just a collection of information, not a real collaboration. However, it's important to use this PPGIS methods to have a comprehensive view on what are the opinions of people in the different neighbourhoods, because of course people will have different opinion about the topic if the live in the city center or in the suburbs. Also, Maptionnaire is a great way to reach more people rather than a simple approach based on workshops, also because is not possible to organize workshops for everybody in the municipality.

Do you think these PPGIS tool could help to engage people who were not part of these processes?

[43:00] Yes, I think is also important that we think about how we recruit people in these processes. We should locate them and then go directly engage them where they live. The risk is often that, if we make an open call to join and reply to a questionnaire, most of the people won't answer or the ones who answer will be just a little portion, who is already interested in participating in such activities. So my worry is that we don't reach the citizens we should have reached. For sure, immigrants are a part of this audience who is not engaged and they should. But it is the task of the municipality to reach out to them.

How do you usually recruit people to participate in such processes? Are there selected invitations or are invitations randomly sent?

[44:45] We have not discussed yet in which ways we should address citizens during the Nordic Path project. During normal master plan drafting, the municipality has a focus to engage some groups of people, which represents a target for the changes envisioned in the plan. Often these people are representatives of the city council, but I am not sure if this is good enough.

Does the municipality tend to go back to the same people, so?

Yes. Anyway, other categories who are addressed are young people and children, because of course they will be affected too by the changes proposed. We did not do a selection, we would like to inform about this process and try to spread the word, trying to engage the widest audience. But to

get the most representative audience, we should select which parts of the population we want to specifically address. Right now, we get feedback just from the most interested ones**.**

[49:00] There are different approaches, of course. For instance, Trondheim municipality is working to get a more representative selection of citizens to work with them. It is another method because they want to educate the citizen to inform them so that I have enough knowledge to make an informed decision and I have a more comprehensive knowledge of the problem. It is definitely something that we should be aware of because we will have different outputs with different approaches and of course there may be some weaknesses. It's a choice if we want a more open process or a more targeted one.

One of the problems of participation is feedback. Do you think Maptionnaire could be helpful in this?

We want to give feedback about the implementation of the project but through workshops or other traditional means, not Maptionnaire.

Do you think the Urban living Labs would have a permanent place to confront the citizens or just to inform them?

 [53:50] The primary goal of the Urban Living Lab is clearly the collection of data. But when problems arise (like for instance the air pollution derived from wood-burning), these places become also a place to find solutions together with citizens. So these places present a variety of possibilities. Now we want to go through the solution with Action plans. From the discussion, multiple topics could be tackled. We can imagine new subsidies for lowering energetic needs. Then we can talk about transportation planning. We imagined bringing the men of Fire Brigades so that they can speak to the citizens and tell them about the best ways to improve the quality of burning and also tell them about incentives to change their wood stove. But also we want to include all of the sectors involved in the problem, such as wood seller and stove seller. Talk about incentives they can access to solve the pollution problems.

Appendix B - Interview with Anu Hämäläinen and Henna Hovi, 18th May 2021

How the walkability plan of Helsink has been made? How and who has set the goals?

Hovi: The walkability action plan was initiated by an unofficially group of professionals, planners who were interested and they were advocating for this kind of topic. They had the idea and at the same time there was a student at the municipality completing a thesis comparing the strategies of Copenhaghen and Stockholm. They reflected on the results and extended their reflection on how to imporve the walkability situation in Helsinki.There was no doc guiding walkability research and the development. There were at the time some projects about improvimng the walking environement in Helsinki but they were not tighted to any monitoring strategy. So then basiccaly the walkability strategy came out from this need, that we need to set a path to what we are doing on this topic through the city. There was already Cycling plan of 2014. It was raised by a lack of coordination.

It was more that we recognized that walkability is a cross disciplinary topic that goes beyond the borders of architecture, landscape architecture and traffic planning. When we started to this strategy, it was clear that this needed to be done as a cooperative effort of different services, the problem of walkability because is forced into the gaps of these disciplines and then nobody feels responsible to it. The participation came into it very soon, we did a liteterature review about the questionnaire that were already been collected. During this step, we discovered there were literally no data about walkability issues outside of the inner city center. Hence, we decided to cover the whole city with the Maptionnaire survey, to get a more professional view on this topic. On the organizational level, we organized also some workshop for planning professionals. There was also an event organized, so that we could hear what were people opinions [08:47] but there were jsut 2 people standing at the presentation, and of the 2 one was an ex-employed from municipality. These strategies and plan usually do not interest so much the public or the lay-man so much, it is much more useful to have workshop environment and strategies with professionals who know the process of thing- becuase this is what strategies do, they guide the processes. When we want to ask the residents something directly, this is where they will point out where they want the bench in the nieghbourhood. They are not so interested in the city wide development, at least we found in this project.

When you strated involving citizens to get data outside odf the inner part of the city, the project was already adopted from the municipality?

[10:00] Henna: Yes, so we could get through the process of getting basically the resources, like hire leaders, get the project accepted and begin. We had to present the board leaders, actually we presented to Urban Environmental Council.

What were the the results of participation through PPGIS?

[11:40] We had one month survey time.We gathered information on pedestrian routes and the reasons why the people walk alons some certain routes. We organized the survey in 3 languages, Finnish, Swedish, because we have a lot of swedish speaker and English. It was available also on mobile phones, especially for young people. We got 1600 respondents, who marked more than 8700 routes across the city.

Which kind of people do you think is easier to engage with such tools and which kind of people do you think are likely to be excluded?

Anu: Well, I could say that nowadays almost everyone we can reach. the phones are always in our hands and people are spending a lot of time with these digital tools. we still have, though, to organize a traditional meeting, even if you did not have

Probably I think we have been able to reach an average younger class of population than normal. We are aware that it is difficult to reach out to people coming from abroad, cause most of the times they are not interested in urban planning but more in other topics, such as housing, for instance. We are still working on this issue, to get them more interested. I don't think it is something related solely to language anyway, I think there is still a culturally related problem because most of them do not know they can take part in these processes.

Henna: Yes, it's tricky, we have a little of a problem there. These online methods gather more of a crowd that is already interested. We recently got a Bloomberg funded project in his school, where we target children. It is known that in Urban planning kids are one of the least targeted individuals during this process, not just in Finland, but for the general speaking discipline. Youngsters, in general, are quite hard to reach and people who generally say do not have a close tie to the place, like people studying, people living on rent. I have the feeling that people who own apartment they have great place attachment. While people renting, have little less interest in the area, I remember this from the walkability survey.

Helsinki Model for Participation and Interaction with Citizens

Anu: The model goal is to promote know-how and knowledge. OmaStadi is the participatory budgeting system, enabling citizens to vote on other citizens' idea and there's an annual budget to fund them. There is freedom in choosing project to realize within the framework. We have also other channels on the municipality website that let people give feedback on the municipality work. We see Helsinki residents as city users and information provider, they are expert in city living and participative producer of local knowledge. Resident is also a customer citizen who is an active product developer in participative urban planning.

PPGIS tools have a future in a more organic way of plan with a collaborative mindset?

Anu: We don't have everything in the city so I believe in cooperation. About the tools, it is always about what you would like to know. First, you need to define the problems and then you think about which are the tools you need.

Henna: Yes, I agree. You got to choose the right methods to get the data you want. These survey tools are more tools to gather data rather than democracy tools. Those are 2 different forms of participation. It could be evenly divided, data in order to understand the users as people who,[as planners], are involved in city-making. Then there is like this building and land use law, that is inbuilt the participation process that is legally binding, and then, of course, we are in a political environment, and citizens vote for the politicians who promote the kind of city they prefer the best. I know that has been in Finland and Canada, where citizens board, who are made by a group around 10/15 people and then they made an equally represented groups so that it could represent the demographic structure of city. These methods are used to kind of bringing people to represent their group of people. But, no, absolutely not, I would answer no to the use of a tool like Maptionnaire or an online tool, because you will always need the planners to chew the information because there are always conflicting views on each other. Consensus is basically a kind of utopic idea, that we can not reach. It is more of a target which planners should aim to but not reachable in practice. You need to find a way that is important to recognize in modern planning practice, that it is virtually impossible to build or change parts of the city in a way that would be good for everyone.

We would like to look into methods that can address different kinds of people and marginalized kinds of a group, but I don't think that opening up an online questionnaire is enough to fix the problems of misrepresentation.

You think the opinions need to be always filtered and then synthetized by professionals?

[**40:35**] **Henna**: Yes and, moreover, if we end up with people directly voting where should be new constructions, what is the role of urban planners then? These people are not land user or transit planning specialists, so the user does not necessarily know what is good for the collective good and ,of course, planners do not know either, but planners' job is to chew these information into something that could make a clear choice that emerges in a political/strategic view. These reflects the democratic process behind these strategies.

Which problems of participation planning can be filled by PPGIS?

Anu: Well I think that it is working for everyone, we need different tools to reach different audicence. There is the challenge of availability and then we need still focused on what relevant to us.

Appendix C - Interview with Christina Rasmussen from Kristiansand Municipality, 11th May 2021

How the strategic planning is made in Kristiansand Kommune?
[**01:00**] The plan is valid for 10 years (2030). According to Norwegian planning Law, every 4 years (political period) we have a planning strategy, which tells us which plan we are going to implement in that political period. The municipality needs to decide if you have or not to review your municipal plan (the 10 year-long one). It takes a long time to make it so often the plans are left untouched. Currently, the municipality is engaged in a process of merging with other surrounding municipalities, so now we are merging our plan with 2 other municipalities to have a final one. This process involves the merging of the land use plans but also of the strategic ones.

So the goals of this strategic plan have been set just by politicians?
[**03:48**] No, it has been a long process to define them. At first, we were looking at existing plans to acknowledge the past work. In the Autumn of 2019 there was a big process to understand what was important for the people in different thematics, to under light what was a priority to engage them.

This creat an addition to adjusting the plan according to the desires expressed by the people. The municipality wanted also the UNSDG goals to be implemented into this strategic plan. This, of course, has to be done keeping in mind the context of Norway: it would have less meaningful to implement those related to hunger, for instance, while we care a lot more about environmental pollution and quality of life. We illustrated how these SDG affect the strategic vision.

Did the municipality already had some goals to pursue and, therefore, tried to understand citizens' opinion or the planning officials went to the consultation with a more open mind?

[07:00] I can't reply in detail because I haven't been coordinating all the activities involving participation. But in some ways, the municipality proposed to the citizens some topics to discuss together and they ask them to invite friends and chat with them in their houses, for instance. The input and what they discuss remains to them but the point is that the citizens should have their mind clear and get an opinion by themselves before entering the participation process. The municipality also tried to get people's opinions directly on the territories, asking them to reply to brief questionnaires about the qualities of the neighbourhood directly at the bus stations.

It has always been like this in your municipality?

It's difficult to say for me because this is the first time I am participating in the drafting of the Municipal plan. However, I can tell you the Norwegian planning law makes it mandatory to have participation and it seems to me that participation has been a growing concern for municipality and politicians since I am working here. The process of merging municipality has also contributed to being a catalyst to increase the interest from the political world to participate because of course, this project has been subject to criticism from many citizens. So the politicians want to have an increased dialogue and better close contact with citizens. There is an organization called "The Citizens' dialogue" focused on the involvement of representatives of different groups such as young people, elderly, handicapped etc to create better communications between the political world and citizens' requests.

During the interview with Solvor Stolevik, she said that the municipality often involves representatives of the same groups of people during the planning process. Do you think is a problem to refer to the same "block" of people in such processes? How would you solve this pattern of participation?

Actually is true that the citizens' neighbourhood they are organized in councils, with board members. Surely it is an easy option to refer to them as a first step when you don't know where to start and we also go back to them for feedback. However, I think is important to specify which are the level we are working on. When we are working on the municipal plan, especially with the part

which has indications about participation and goals that have to be achieved, there is a public hearing to present this. It is easier to inform directly the neighbourhood organizations of the event. But if we are talking about local plans, which are more detailed, it is easier to involve citizens, because you know already who is gonna be affected by the decisions, so you go into the schools, kindergartens and special meetings with citizens, and they can better tune the participation to the local needs, also reaching voices wich are more silent.

Of course, it is not a perfect process and always perfect. In the local plans, there is a broader invitation rather than on strategic plans. When you go down in details, it is easier to do get in touch with more people.

So in your opinion, this process involving just some representatives to discuss about strategic plans are working well enough?

[17:00] It is one way to get in touch with the people. Is part of the planning ideology that you would like to have as many responses as you can when you present a plan, because it would affect their everyday life, even if is an awful plan. Planning is a very democratic process**.**

Sure but if this "restricted" model is working, as long as there's a democratic process also inside these associations, maybe is not a problem if not everybody are involved.

[18:30] There is this background structure that makes things easier. I you're part of it, you show as a citizen interest in what is happening where you live. I think that one cannot say if these organizations are good to represent the variety of people who live in a neighbourhood, that has different economical and social situations. A colleague who is an advisor in Norfolk for multicultural. It was keeping in touch with the people on WhatsApp, for instance. Those people would be of course not reachable through invitational letters sent through the citizen organization. So in the end, it is democratic and it is a representative structure but it demands from the citizens, so it means that some will still fall out of the process, if they don't have awareness of time or, typically, social-economic groups with low income or low educational level. And they are also the most vulnerable in city and society in general. So probably we should address more.

What do you think about PPGIS software? Do you think these tools can target some swathes of society that fall out of traditional methods?

[23:00] I think it is a good try. We had discussions with, my colleagues, about the representativeness of such tools. Potentially you could reach more people but it is not something granted. Because it is not just a communicative problem, there may be also culturally problems, such as the feeling that some parts of the society do not think they have the right to be part of such processes, for instance. So, again, it is another tool at disposal of planners but it is not a guarantee of anything. It is surely

worth exploring and any participation should be aware of their weaknesses. This is also why, during the drafting of the strategic plan, we have been using different methods, because you need to get in touch with several people. Some people, like elderly ones, could be excluded by a technological barrier if we just use ppgis, for instance. But that is not always true, as our municipality has been actively using video calling to keep engaged elderly people during pandemic times.

How was participation during pandemic times?

Unfortunately, the consultation for the municipal plan has just started. There have been a few digital meetings, but mostly to inform the public. I think that the municipality also is lagging behind because they can't really

catch up with digital skills. I don't think participation could be entirely translated online, there are not the conditions to do everything from home.

So you think digital participation is still something far ahead to reach?

[28:00] Surely it is something complementary. There are interesting features about visualization of things on a map, something that sparks interest in the audience, that catch their attention more than simply answering a questionnaire. These are surely helpful and complementary tools to traditional mapping, GIS is very ludic and easy and can trigger more people to participate. My personal view is that you cannot be a municipality working for a community and getting feedback without showing your face. There is a personal trust that must be built between the participants that can not be replaced by digital tools.

About the Urban Living Labs, they are part of a strategy?

Urban Living Labs are part of the strategy and it is [33:54] part of envisioning together of Tinhajer neighbourhood. [34:25] The one of Tinhojer is related to sustainable social and there are other ones who are going to be established throughout the city. The urban living labs what are the solutions whenever there is a project: for instance, land use neutrality or climate calculations connected to environmental themes, explaining scenario elaborated by architects already. These are places to brainstorm and debate but until now we are not at the deliberative step already, because the participation has not really started yet.

What about the theme of feedback in PPGIS, there is the potentiality to keep track of the implementation of the plan. Do you have any mechanism for feedback in Kristiansand? Do you think PPGIS could be used for this task?

I think that implementing Urban Living Labs is a step that could help get more feedback from citizens. The only feedback that we get is just within a very formal process, summarizing the feedback we get in documents for politicians and then they are are of course public, but who really reads them? I think the feedback is not good enough. Some say that we have the ambition to get better feedback while we are developing the new master plan. Where we can communicate how we have been using the feedback from the citizens. The thing is that, especially in the municipal plan, you will never have the possibility to edit the plan with citizens' observation during the development. I think that, at the moment, we could just take the observations and be sure to make a framework that makes sure to implement these details in the next master plan. It's difficult to implement the details in the strategic vision, and this is the most common feedback we get from citizens. This is a communicative challenge we have, depending on the level we are operating on. The challenge is to link strategic vision to local plans. We can be much better than what we are now. Evaluation, made by private consultant companies, said that feedback was kind of the weak point of our plan, This is something we definitely have to work on. Probably GIS is a good way to visualize and comment where the comments come from. But still is difficult to explain the structure of a planning process is and show how the words of the citizens are put into practice in the plan or not, it's difficult to explain to non-professional. We get that kind of feedback because we make this kind of question, on the local issue. It difficult to ask for strategic feedback from the citizens side. What does it mean in terms of different sides of planning. We can not ask people what to do with transportation planning in Kristiansand? We might never get an answer. Translation and putting things in the right boxes is the task of the planner, even if the boxes may not be available.

[47:00] Not just power but also responsibility because it is not also up to the municipal court to solve everything. I think solvor is right that over time, we can build a dialogue with citizens, realizing something almost like a database, a map where we can plunge into in real-time and knowing always what is going on. Maybe it will be a more fluid process, between getting feedback along the way and then getting it into the

strategies, processes plans we are working with. I think it is a way, it's a turn that is going on in public administration in Norway. We are in getting what is called Municipality 3.0, evolving from the municipality thought as an authority to the municipality acting more as a collaborator. But if we need to collaborate on the stuff, it means we are going to share responsibilities too. Municipality 1.0 is an era when the municipality poses itself as an authority, then we moved to Municipality 2.0

where it behaves more like a provider of services to the citizens from birth to grave while 3.0 is collaboration and co-creation.

How long is the span of time in which you can imagine this phase could be implemented?

I think it is very demanding to reach, because it is something that requires not only the will of the municipality but off all the actors and stakeholders who are involved in the process. municipality 1.0 was until the '70s, while the municipality 2.0 to 2010, so from 2010 there is the Municipality 3.0. Bu this more as a starting point of an idea; currently is an ambition that requires time to get to. The last phase lasted 40 years, so I think we should image something like that as a time span. The document with this categorization is produced by the Organization of the Public Sector.