# Public Participant Geographical Information Systems

## Participation on the road to social sustainability

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# Abstract

In this bachelor thesis the discourse of PPGIS will be mapped out both theoretically and empirically. I argue that participation is fundamental for social sustainability and that the emerging Neogeography field motivates citizen participation even more. The thesis explores the traditional disempowering views of GIS as it transforms into a tool for equality and empowerment of marginalized groups. Four different cases of PPGIS is examined and analysed through the theoretical framework ending in a review of PPGIS experiences so far, arguing that for a PPGIS project to be considered part of the social sustainability goals the communication within projects has to work two-ways. Discussion is a fundamental part of PPGIS but is sometimes forgotten when projects turn into pure intelligence gathering. I also argue that projects should not be viewed as single entities but parts of the bigger picture, not seen as isolated events but as on-going processes.

*Key words*: Social sustainability, citizen participation, PPGIS, GIS, Neogeography
Words: 12575

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# 1   Bachelor thesis approach

## 1.1   Participation in a Neogeographical world

The world is changing rapidly and so is our society. Technology and knowledge is making people conscious of the world. As our awareness and understanding grows our will to influence our reality increases as well. Geography has always been part of our basic understanding of the world; it's been needed to find our way around our proximity. With the growing amount of movement and travels some of us almost consider ourselves to be expert of the subject. We create and uphold geographic content on the net and we contribute to open sourced maps. This new wave of citizen science, Neogeography, is breaking apart the boundaries between experts and amateurs.

This new geography is growing forth just as the participatory processes in planning are given increased value and significance.  To involve citizens in planning related development is now seen as a must if planning is to be considered sustainable. There are many reasons for this, not the least that of familiarity. Who knows the neighborhood better than the inhabitants themselves?

In this bachelor thesis the objective is to approach PPGIS theory and implementation from a social sustainability view. The aim is to show that PPGIS is a part of sustainable development and also a part of the Neogeographical world. It is also the intention to show that participation has a theoretically firm body and that it is part of the social sustainability discipline.

### 1.1.1 Defined questions

**How is PPGIS applied as a communication tool between citizens, civil servants and decision makers?**

- Why is citizen participation important?
- What experiences can be summed up?

## 1.2 Methods and directions

### 1.2.1 Intention

Examine Public Participant Geographical Information Systems (PPGIS) and how it fuels participation in new innovative ways. To map out PPGIS the discourse of sustainable development and participation has to be briefly dealt with. This is the same for Geographical Information Systems (GIS) that will be shortly charted. The choices of importance have been dealt with on behalf of the bachelor thesis questions, aiming for a brief but firm recognition of the theories. These theories will then be operationalized through four empirical cases that have seen practical use.

The purpose of this bachelor thesis is to answer the questions stated and deeper the understanding of PPGIS and its manifestations. Furthermore this will create foundation for building empirically and theoretically well substantiated PPGIS projects that are well aware of the local, global and changing nature of successful PPGIS projects.

It is also part of the intension to link participation to social sustainability, to show that it is a fundamental part of the whole sustainability discipline, that citizens should be more intimately involved in making decisions that influence themselves, and future generations.

## 1.2.2  Scientific Methodology

This methodology and its different techniques will be part of the analysis chapter. Scientific methodology can be pictured as letting the reality speak for itself. This is not completely possible due to perception and representation of reality, which will be more in-depth, dealt with in discourse analysis methodology part.  In this bachelor thesis this is only a mere attempt to try to some extent analyzing the theories and cases as objectively as possible.

In the analysis part of the bachelor thesis the PPGIS projects that are chosen will be tested. Looking at every project with an open mind and reflecting on user friendliness and other key aspects without being influenced by pre-knowledge or previous experience.

## 1.2.3  Epistomology

Epistemology or the theory of knowledge is deemed important to mention due to its fundamental part of whom, why or how individuals engage in different subjects[1]. The urge for understanding a phenomenon is not developed in a void and the ability to understand it is not set in stone.

The author of this bachelor thesis has studied history of science, philosophy, ethnology, law and is now finishing urban and regional planning bachelor. This is important to keep in mind while reading because it influences which directions are chosen, both regarding theory literature and empirical cases. The planner's perspective is partly present and directs lines of interrogation throughout the bachelor thesis.

## 1.2.4  Discourse analysis

The general idea of discourse analysis concerns how the language is structured through certain patterns that peoples utterances follow when they participate in

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[1]Audi 2011:1-9

different aspects of the social life. Its interdisciplinary nature makes it a theory of theories or discourses[2].

> *"---as a particular way of talking about and understanding the world (or an aspect of the world)"* – Jörgensen &Phillips 2011:1

In this case the approach will be on social constructivist conceptions. This determines that a critical mind towards data will be applied. Both the knowledge and the presentation of such is part of the ruling discourse regarding the subject. The way we represent our world is a contingent with history and culture. In most we approach this with an anti-essentialist view and states that being pre-exists essence. The social world is socially constructed and therefore it's not pre-given a set of characteristics or essences.[3]

Social processes create and maintain understandings of the world. Common truths are constructed through the competition of true and false.[4] Different social understanding of the world can also lead to different actions in life. The social creation of knowledge and truth has direct and indirect social consequences.[5]

This has the effect that representation of reality cannot be mere reflections of what is perceived as pre-existing reality but also has to be part of the construction of reality.[6]

In this bachelor thesis discourse analysis will be used in the later sections to analyze the patterns of statements within relevant theories and how they are used in the empirical cases of PPGIS that will be explored. It's also important to try and identify the representations of reality that is the discourse of PPGIS.

The method used for extracting viable theory from literature is mostly qualitative; the assortment of literature used can also be categorized as qualitative. This is deemed the most efficient way of dealing with the questions stated in this bachelor thesis. To sufficiently target the essence of literature and establish

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[2] Jörgensen & Phillips, 2011:1
[3] Jörgensen & Phillips, 2011:5
[4] Ibid
[5] Jörgensen & Phillips. 2011:6
[6] Jörgensen & Phillips, 2011:9

discursive profundity to the subject a more qualitative intimate approach is necessary.[7]

The qualitative approach will be uttered in a way that both the choice of empirical cases and the analysis of them will be concentrated around aspects brought forth from the theoretical framework. This intimacy between theories and empirical knowledge is a must during analysis, to unveil differences and similarities that are not explicitly expressed.

### 1.2.5 Literature choices

The field of PPGIS and to some extent the modern part of GIScience is young. It grows and changes rapidly and is to some extent hard to categorize due to its fragmented nature. Which literature is relevant is hard to grasp looking in from outside the PPGIS discourse. To help keeping researchers and practitioners updated and included in the newest findings and ideas a couple of websites and forums have been developed. These communities provide meeting places for people working with PPGIS or who share a common interest in the phenomenon. A field that changes this much on a daily base is hard to keep track on within literature because it's too slow to publish. Much of the information is therefore attained through newsletters, forums and internet articles.

In this bachelor thesis the author asked for help with bibliography on the largest PPGIS meeting place http://www.ppgis.net that is managed by http://www.iapad.net. Most of the answers were about Reée Sieber´s literature review and due to that fact a lot of the theory surrounding PPGIS is summarized through this review. This review has a strong foundation building on large literature studies on the subject. Everything mentioned in the review is supported by multiple sources which gives it a certain degree scientific authority. That's why it will be an important part of building the theoretical framework of the bachelor thesis.

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[7] Esaiasson et al. 2007:237

## 1.2.6  Hermeunetics

Hermeunetic is the science of reading and interpretations of text and actions. Interpretation is to be able to withdraw the essence of a text or action according to the initial questions asked.[8]

Already mentioned within the epistemology section it's important to remember that individuals' interpretations of the world are based on personal experience. How to interpret a text can differ widely even so that some skeptical philosophers question the ability to understand others perception of the same text at all.[9]

What is to be taken into consideration while exploring theories of PPGIS and the empirical cases of PPGIS is the use of value contingent words like "democracy" or "equality" and more. When analyzing texts the same thoughts should be regarded as when dealing with empirical cases. When multiple interpretations are available they should all be tested on the material. What consequences can be read from this interpretation? Is this coherent with the rest of the material? Does this interpretation gain backing from existing knowledge?[10]

Hermeneutics stand in contrast to the positivistic way of understanding phenomenon's apparent in the world. It is hard for humans to understand how animals feel about their world and their life's but with empathy other humans' emotions are within reach. We understand each other thanks to our ability to see inside ourselves and put ourselves in someone else's shoes.[11]

This is not always correctly enforced and so called projection is common. Projection is to give someone else your own properties and thereby falsely interpret their thought or actions. This is especially important to keep in mind when dealing with historic accounts, todays social and moral codes might not apply but the same goes for cultural and religious differences. This line of thought also leads to the importance of putting the ideas in the right context. What is

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[8] Esaiasson et al. 2007:249
[9] Esaiasson et al. 2007:251
[10] Esaiasson et al. 2007:252
[11] Thurén 2007:94,95

considered normal and appropriate behavior differs greatly between civilizations and cultural borders.[12]

## 1.2.7 Pre-Knowledge

Pre-knowledge is a ruling factor in our perception of the world. It's not only within science but in our everyday life as well. Pre-knowledge is there unconsciously affecting our personal representation of reality and the decisions that we partake in. Often this is already being programmed into our minds during our childhood in a process referenced to as being socialized into our community.[13] This process affects how we perceive our environment both physically but also socially. This pre-knowledge is a must have to be able to function in our society.

This pre-knowledge can also be categorized into two value contingent categories. Pre-knowledge is considered real while prejudice is the false.[14] Prejudice is negatively contingent and is in modern social discussion connected to stranger hostility. Thurén mentions the hermeneutic circle as a way of overcoming prejudice. The hermeunetic circle is the interaction between pre-knowledge and experience, how humans reflect and reevaluate views of the world.[15]

This Pre-knowledge is important to bear in mind while reading scientific literature. The researcher doesn't exist in a void but is part of our socially constructed reality and this affects his views whether it's known or unconsciously present. A scientific problem is originating from this pre-knowledge of reality and reality as it's represented in our minds.[16]

This pre-knowledge is part of the human mind. Nothing is really normal but in relation to something else. Keeping this in mind it's important to investigate more than one example of PPGIS projects in the case study part of the bachelor thesis.

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[12] Thurén 2007:98,99
[13] Thurén 2007:62
[14] Ibid
[15] Ibid
[16] Bjereld et al. 2009:14

### 1.2.8 Case Studies

The case studies in this bachelor thesis are an important part of understanding how PPGIS is used in participatory projects around the world. To be able to efficiently analyze empirical cases more than two are required. This is due to the comparison part of the case study methodology. Without comparison a real analysis of the individual project would be hard to accomplish.[17]

In this bachelor thesis a number of empirical cases will be analyzed with help from the theoretical framework. Choosing cases hasn't been easy due to the fact that many projects that have been implemented are taken offline when the project is finished. The cases have been chosen due to their recognition as PPGIS projects within the global PPGIS community. (iapad.net & PPGIS.net) Virtual Slaithwaite participatory planning system, CommunityPlanIt, Place It and My City Gothenburg are all PPGIS projects in the way that they give the public influence and a voice in the planning process and they possess a spatial geographical component. They all do this in different ways which broadens the possible analysis of the cases. The choice is therefore not one of total similarity but of the same theoretical ambition, to enforce PPGIS and reevaluate the structure of traditional participation.

The projects will be analyzed by trying them and by taking part of the official information channels belonging to each project. There are some individual differences in the analysis of each project. In the analysis of Virtual Slaithwaite project a former investigation of the project enables some more in-depth information. PlaceIt will not be tried but analyzed from a theoretical perspective, by for example investigating the SoftGIS theory.

### 1.2.9 Validity

Validity is defined in literature in three different ways that are equally important and to some extent seen as synonyms of the same idea.[18]

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[17] Esaiasson et al. 2007:121
[18] Esaiasson et al. 2007:63

1. Correspondence between theoretical definition and operational indicator
2. Absence of systematic faults
3. Correlation between what we measure and what we claim to measure

According to Esaiasson et al. 2007 this three sentences can be separated into two blocks. Number 1 and 2 as conception validity and number 3 as result validity. If a researcher manages to get a good concept validity and reliability it also makes for good result validity. This can also partly be expressed as absence of systematic and non-systematic faults makes the thesis coherent and ensures that the researcher is actually measuring and investigating what is initially claimed.[19]

To test the validity of the thesis two different techniques are available. Criterion validity means that the researcher uses different operational definitions of the same theoretical concept. If results are the same independent of the operational definitions the criterion validity is considered high.[20]

The other possible examination method is construct validity. In this case we create a hypothesis about a property that's to be measured. If the hypothesis gains support from the operational definition of the property the hypothesis have high construct validity.[21]

In this bachelor thesis we want to examine how PPGIS can be applied as a communication tool between citizens, civil servants and decision makers. A theoretical definition, discourse of, GIS, PPGIS and sustainable development, will be created. This theoretical definition is then operationalized through the examination of empirical cases.

In the case of this bachelor thesis high criterion validity will be achieved if the analysis part examines the empirical cases and evaluates them with the theoretical framework in mind. That way the differences between practical execution and theoretical distinction can be determined. Low criterion validity would be if fundamental theory concepts are not present while examining the empirical cases.

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[19] Esaiasson et al. 2007:63, Bjereld et al. 2009:112
[20] Bjereld et al. 2009:114
[21] Bjereld et al. 2009:114,115

The empirical cases can be seen as operational indicators that are being tried on the theoretical concept of PPGIS.

## 1.2.10 Reliability

Validity is depending on what is measured while reliability is more leaned towards how it's being measured. If the experiments being done are signified by sloppy execution the validity of what is measured doesn't matter, the result will still be false.[22]

To strengthen the reliability of a research study parts of it can be redone by the researcher himself or by other scientists. If the results are the same the reliability is high and the analysis is then showing good intersubjectivity. This is relevant mostly when dealing with interviews when the contact between the interviewer and the subject is affecting the answers and thereby influencing the results. [23] The empirical cases are available online and the literature is obtainable using the source reference ending the bachelor thesis. Reevaluation of the examination is therefore possible.

Reliability in the case of this bachelor thesis is therefore relevant for examining the way that the operational definitions or the theoretical framework interacts with the empirical cases.

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[22] Bjereld et al. 2009:115
[23] Ibid

## 1.2.11 Summary

A theoretical framework of social sustainability, Neogeography, GIS and PPGIS will be the foundation of the bachelor thesis. Four empirical cases will be examined and evaluated with the theoretical framework in mind. The methodology will strive for good scientific validity and reliability through constant reevaluation during the path of the bachelor thesis. The complexity of value contingent words will be addressed as part of the ongoing discourse analysis. Throughout the thesis the aim is to pin point the most important information in the beginning of the chapter, this is to allow readers to get into the core revelations without having to read the whole thesis. This is especially important in the beginning of the theoretical framework, PPGIS projects and the discussion. The research and theorizing of the bachelor thesis has not been done in a streamlined fashion. All the different parts have been researched and worked through parallel to each other. This way intention and direction throughout the thesis is cohesive with the line of argumentation.
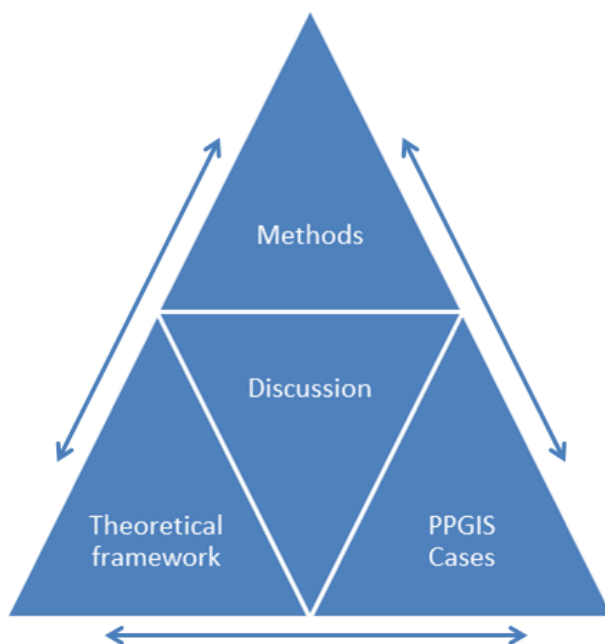


**Figur 1, research structure**

# 2   Theoretical framework

The theoretical framework consists of four discourses that are considered relevant for the thesis. Social sustainability is an important part of the sustainability package and according to research by Boverket[24] citizen participation is a fundamental part of social sustainability. This is especially important in the Neogeographical era, were the expertise of citizens in geographical matters is growing and is consequently blurring the difference between amateur and expert in geography. This evolution of geographical information systems that traditionally has been seen as authorities and big companies way of keeping track of people and resources is creating a wave of counter effects. Critical GIS, feminist geography and many more such discourses are trying to challenge the scientific authority of the past. In amongst these challenging disciplines PPGIS is emerging as a way of empowering marginalized groups of society and with the objective to expand the influence of citizens in spatial planning. Problems with value contingent words like equality is that there is no universally accepted definition of it, which translates into the concept being multifaceted. The differences of opinions is also noticeable within the PPGIS discourse were scattered opinions about implementation created PGIS that aimed to be more true to the equality and empowerment ideas.

## 2.1   Sustainable development

This idea or concept is of unquestionable importance in the modern society. It is consequently used by politicians and scientists alike but lacks universally accepted

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[24] Swedish public authority of spatial planning, building and residents. Administrative authority for matters concerning the build environment, conservation of land and water areas, spatial planning, construction and management of buildings, housing and housing finance.(Swedish central housing agency)

definition. Due to this lack of common understanding of the concept it is important to define its meaning whenever it's to be used. This is fundamental to bear in mind while reading books or articles referring to sustainability.

The most commonly used definition has its origin in Brundland report from the 1983 World Commission on Environment and Development (WCED), "Our common future". It defined sustainable development as "*development that meets the needs of the future without compromising the ability of future generations to meet their own needs*"[25]. This definition is wooly at best if you haven't defined what the requirements of future generations will be and this is of course not easily done. The blurred out concept of this idea is more clearly pinpointed when referring to more concentrated subjects, for example the fishing industry. One might argue that fishery is sustainable as long as there is no long term effect on the availability of fish in a sea, continuing that if fishes go extinct the fishing is clearly not sustainable.

The blurriness quickly returns when two different subjects collide. Social sustainability, which will be more in-depth, dealt with later on, and the above mentioned sustainable fishing easily becomes rivaling or competing objectives. This especially is relevant in a short-term perspective. If food is sparse the sustainability objective of fishing becomes obsolete for the time being. It all depends on what's at stake and social, human problems in most cases get prioritized.

In short sustainable development has been divided into three fields which are equally important parts of total sustainability.[26]

- Ecological/environmental sustainable development
- Economical sustainable development
- Social sustainable development

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[25] http://www.un-documents.net/wced-ocf.htm, accessed:2013-04-15
[26] Boverket 2013:21

## 2.1.1 Social Sustainability

This idea has no exact meaning. It's a theoretical concept and must be defined before its being used. WACOSS 2000(Western Australian Council of Social Service) defines the concept as:

> *"Social sustainability occurs when the formal and informal processes, systems, structures and relationships actively support the capacity of current and future generations to create healthy and liveable communities. Socially sustainable communities are equitable, diverse, connected and democratic and provide a good quality of life." – MCKENZIE 2007[27]*

According to Boverket 2012 it's important to look upon social development from two perspectives that are interlinked. The process, which determines the social shape of living standard of future generations, and the condition that shows consequences for the social and economic aspects of daily life.[28]

Boverket continues that different groups and their needs should be taken into consideration to create equal socially sustainable societies. It's stated that social sustainable development should actively enforce and promote bettering of citizens meeting in the modern society's public space.[29]

When considering social sustainable urban development Boverket has isolated five reoccurring themes that are important to acknowledge[30].

- Comprehensive view: To see every neighborhoods part in the city's total transformation and to combine physical and social actions.
- Variation: The importance of a varied urban landscape when it comes to functions, living quarters and appearance.
- Connectivity: Linking different parts of the city together in a satisfactory matter.

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[27] http://w3.unisa.edu.au/hawkeinstitute/publications/downloads/wp27.pdf accessed: 20013-05-07
[28] Boverket 2013:21
[29] Ibid
[30] Boverket 2013:43

- Identity: Creating the prerequisites to positively identify with your neighborhood.

- Influence and coordination: Reworking the urban landscape must be done with the citizens of the neighborhood participating and all of those who can be in influenced by the decisions made.

## 2.1.2  Sustainable urban development

This is the combination of the whole sustainability ideas put in practical use. The balance between the economic, social and environmental aspects of sustainability in urban development is increasingly important when dealing changes in the urban landscape.[31]

Even though the importance and the discussion about sustainability is growing it's hard to ignore the fact that cities are net consumers of resources and will probably continue that way. Being environmentally aware is often halted by the will to live in the rural landscape but work in the cities.[32]

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[31] Pacione 2009:186
[32] Ibid

Michael Pacione characterizes the ideal sustainable community as:

> *"Environmental Integrity: clean air, soil and water, a variety of species and habitants maintained through practices that ensure long-+term sustainability, recognition that the manners in which natural resources are used and the impact of the individual, corporate and societal actions on the natural processes directly influence the quality of life.*
>
> *Economic vitality: a broadly based competitive economy responsive to changing circumstances and able to attract new investment and provide employment opportunities in the short and long term.*
>
> *Social well-being: safety, health, equitable access to housing, community services, and recreational activities, with full allowance for cultural and spiritual needs."* [33]

Social sustainability in the urban landscape is by many opinions closely linked to an increased amount of citizen participation and collaboration in neighborhood planning. Except the obvious reason, that the inhabitants of a community best know the problems and values of a particular neighborhood, it is also important to bear in mind that change is happening at a faster pace than ever and most of the planning theories being applied are remnants of an old age.[34]

A collaborative approach to planning processes might be the sustainable way of urban development. To see planners as apolitical actors in-between the people and the representatives, offering advices and listening to suggestions, is a fundamental part of this representation of reality.[35] The question is if there truly is such a thing as an apolitical being.

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[33] Pacione 2009:186
[34] Allmendinger 2009:197
[35] Allmendinger 2009:220

## 2.2   Public Participation

### 2.2.1   Experiences by Boverket

Public participation and its importance in society, even within private housing agencies, are growing. It's starting to be fundamental to originate from the residents opinions when planning or developing a neighborhood. The residents are the experts of their own living area. They know the good and the bad correlations and what change or development is necessary to better the urban environment.[36]

When working with residents within renewal processes on neighborhood level it's important to involve people early on. Then use the wishes and opinions regarding the renewal of the neighborhood throughout the process so that they can build a ground worth developing. It's also important to make the residents feel that their participation matters, that they actually are taken seriously by the developers. In participation projects a link between positive effects of the renewal and the residents feeling like the process is for real and that they indeed shape their own world.[37]

Public participation projects within the branches of housing agencies are more or less limited to public service housing agencies, housing agencies without profit pretension. The different projects for example, community boards, community working groups, stairwell meetings, open space exercises, social media, and different sorts of talking wanderings are a continuous process that is needed even for the maintenance of the neighborhood[38]

Many municipalities work with citizen participation during the planning process and also other developments projects. Their empiric knowledge shows the importance of involving not just the citizens of the community but also housing agencies, different coalitions, businessmen and other agencies. Involvement in the process should be established during the early stages. It is often preferable to have meetings and other activities being done in the target community not outside of

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[36] Boverket 2010:61
[37] Ibid
[38] Boverket 2010:62

them. The conventional ways of communicating with citizens and others might not work satisfactory leading to new communication routes being applied so that the citizens firstly understands their way of influencing the neighborhoods and then secondly take part in the change.[39]

The community's identity and the ability of the inhabitants to identify with their neighborhood have been fundamental to successful urban renewal projects that are deeply rooted in participation practices. The feeling of connection between inhabitants and in some aspects also the housing agencies can be positively enhanced through community activities and by creating meeting places. These activities and meeting places should then be used as starting-points for participation projects in the area.[40]

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[39] Boverket 2010:63
[40] Boverket 2010:68

## 2.3 Geographical information systems

### 2.3.1 What is GIS?

Defining GIS is a hard task. It can be seen more or less as a branch of IT, or a cartography discourse concerned with computer applications for mapping or a toolbox for spatial analysis, or data systems or for some it could be considered a field of academic studies.[41]

In K.W.Yeungs *Concepts and Techniques of Geographic Information Systems* it defines GIS as:[42]

*"...a system of hardware, software, and procedures designed to support the capture, management, manipulation, analysis, modeling, and display of spatially referenced data for solving complex planning and management problems"*

And

*"...a computer system capable of assembling, storing, manipulating, and displaying geographically referenced information, i.e., data identified according to their locations"*

Using these two quotes we can pin down the definition of GIS and its purpose to: ways of managing geospatial data, performing analysis of the spatial data and solve spatial problems.

The distinction between data and information might not be easy to apprehend. At first glance they even seem like synonyms, but there is actually a substantial difference between the two. Simplified explanation is that data is the numbers, figures and symbols. When data is processed and given values it becomes

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[41] K.W.Yeung 2007:2
[42] Ibid

information. Information therefore could be explained as value added data that contain perceived value to users.[43]

Information systems are a form of work path that aim to achieve certain objectives. This objectives could be collecting data, storing data, analyzing data and then finally presenting data in an easy to comprehend and systematic matter. It could also be understood as input and process that ends with output. Information systems can also be protocolled and linked together to form an information systems network.[44]

## 2.3.2  The disempowerment of traditional views on GIS

Knowledge and power has always been hard to separate and even more so when it comes to geography and carthography[45]. With one come the other and its relevance for powerless citizens has never been great. The so called information society has made knowledge available to an ever growing part of the human population.  In the case of information for everyone the bigger market for knowledge production also has created a counter effect where knowledge once again is for those with wealth and power.  This might seem confusing at first but consider the complexity of knowledge production and the growth of capitalistic and individualistic values in modern societies. As the complexity of a field evolves the cost grows as well. When you buy a program that performs a certain task you are paying for a simplistic way of executing a task. You are paying for someone else's knowledge and expertise.  In the case of GIS you are often both required to pay for the knowledge and you also need a certain degree of education within the field. It is by design excluding because both wealth and knowledge is needed to be able to utilize the systems.

The reasons above and more is why GIS traditionally has been associated with conservative scientific institutions. It's been recognized as a tool for big corporations and governments that are combining science, knowledge and authority to create spatial

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[43] K.W.Yeung 2007:2
[44] K.W.Yeung 2007:3
[45] Henderson & Waterstone 2009:141-142

visualization of socially embedded phenomena's and thereby unveiling previously unknown spatial realizations[46].

Since early 1990s GIS has been debated actively within the field of geography[47]. This discussion has not only been about GIS as a method or base of theory but also about the whole identity of the geography discipline. How is the knowledge produced and represented? For who is the information provided? Economic and social powers and their correlation with GIS has been debated back and forth. Elwood analysis this debate that has been thriving for the past twenty years as an epistemological struggle over scientific authority[48].

Historically GIS has been approached with quantitative methods closely linked with the authorities of conservatism according to the emerging researchers that are concerned with class, gender, sexuality and race. The critics wanted to distance GIS and the methods linked to it from this paradigm by employing qualitative methods seen in humanistic geography.[49]

The shift of the qualitative methods framework and the combination of mixed methods approach has in some way created a new idea that views GIS more as a theory than a tool. The expression GISystems is being replaced by GIScience. This change more adequately states that GIS is a theory for analyzing the world and digitally represents it[50].

Critical reflections of GIS as reducing humans and places to digital dots that doesn't inhabit individual values but only collective worth has given GIS the status of a problem instead of solution. It was seen as a way for authorities to make decisions without involving the local communities, only taking into considerations the corporations and state interests.[51]

The reflections continue in negative way when approaching genus and feminist considerations. The GIS industry has been dominated by males and lacked the variety that is present in the society as a whole. It's been called Imperial cartography because of the historical inequality that still clings to GIS. As mentioned earlier the high cost, the

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[46] Cope & Elwood 2009;15
[47] Ibid
[48] Ibid
[49] Cope & Elwood 2009;15-16
[50] Cope & Elwood 2009;16
[51] Ibid

unequal access and the needed expert knowledge serves for an undemocratic foundation of science[52].

GIS is still dominated by a single corporation developing the most widely used software within the field. The use of GIS is still mostly within state business, corporations and the military. Fact is that for GIScience to be fully employed throughout the society as a whole the alienation and marginalization brought on and maintained by history must be overruled

## 2.3.3  Feminist Geography and GIS

Gender studies are by default a multifaceted discipline that covers all other fields of science. Research within the discipline has been made by individuals not united by educational field but by the shared interest towards gender studies.[53]

Feminist GIS was grown from feminist geographers criticizing what they called the positivistic and masculinized characteristics of GIS technology[54]. Skepticism about the linkage of GIS to quantitative methods, positivistic epistemology, rational knowledge and/or scientific determinism provided the basis of feminist GIS. It sprung forth together with critical GIS, qualitative GIS, PPGIS movements to reshape the foundation of GIS theories and the opinions surrounding the discourses[55].

In earlier research on public space usage by youth population the focus has almost entirely been on boys. The town squares, malls and such has been seen as a place where boys and young men express and develop their masculinity.[56] This is based on old preconceptions and doesn't fit the equal rights standard that is fundamental within PPGIS discourse. Everyone has equal rights to the public space and should therefore also be given equal rights to take part in developing and changing it.

## 2.3.4  GIS Technology, knowledge and data

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[52]Cope & Elwood 2009:16
[53] Gunnerud Berg & Lund 2003:129
[54] Cope & Elwood, 2009:24
[55] Cope & Elwood, 2009:58
[56] Gunnerud Berg & Lund 2003:165

What research and work is done by individual scientists and practitioners is mostly depending on the availability of software, equipment and data. This leads to projects being built around what software and data is obtainable. The technical applications and functions available are access based which explains why the public is not largely involved[57]. This limits the possibilities of unique new approaches and analysis by individual researchers and thereby sustains the inequality of traditional GIS views.

It's also to be considered that technology and data management towards GIS has in much been formed by practitioners and researchers from a thin range of fields. With that said it's not representable to society as a whole but for a limited amount of branches.[58]

Due to the technical skills needed for working with GIS the average community project participants only contributes with input and help evaluate the output. Even this requires basic knowledge of cartography and its elements. That's why research is also being done about HCI (human computer interaction). It serves to lessen the need for skill by the participants and fundamentally ease the usability.[59]

To make a successful PPGIS applications often comes down to knowing when to use technology and how much to use it within a process. The resources available and the different stakeholders' ability to comprehend and use the systems are key to success. On some occasions technology is better left alone and the process instead worked through with pen and paper. Basic knowledge of maps may be one requirement or skills in computer programming.[60]

Much of the spatial data that is created and maintained is developed by the public sector. This states that governmental policies concerning data management provide booth the restraints and possibilities available to researchers and non-governmental practitioners working with GIS. Even though information created by the governmental organizations in most cases is supposed to be easy to access and inexpensive this is weighted against the market oriented operating directives of the current political policies. The individual right to privacy is another important objective that has to be respected.[61]

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[57] Sieber 2006:496
[58] Ibid
[59] Sieber 2006:497
[60] Ibid
[61] Sieber 2006:497

The problems or restraints mentioned above can be similarly experienced within universities and even nonprofit organizations. In both examples the reasons for the constraints can have multiple causes. It could be that students or university employees are unaware of certain policies regarding copyright and infringement regarding data and therefore maybe lacks the licenses needed[62].This might halter the development of new generations of GIS practitioners due to the lack of awareness of students following the use of dead data.

## 2.4  Neogeography

The term in short translates into new geography. It's signified from "old geography" in the way that the roles of the traditional actors within geography have changed[63]. They have become indistinct in the way that they are represented and cannot in reality be categorized as subject, producer, communicator and consumer. The difference between experts and amateurs has been reduced.[64]

This change in the geography is mostly because of the increase in overall movement and travels by citizens which have boosted the average knowledge of geography. Because it's part of our daily routine we also believe that we possess great understanding of our geography. This is in the longer term breaking apart the boundaries between experts and non-experts.[65]

Even the foundation of geographic knowledge is now being produced by citizens without education within the field. Creating maps and charting areas, for example the online Open street map, where the community has mapped out most of the world.[66] This is a great example of what symbolizes Neogeography.

In the "old geography" teachings experts were synonyms to creating quality contrary to the amateurs.  This is rather recent opinions according to Goodchild. That big companies and fine degrees dictates quality. Geography is part

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[62] Sieber 2006:498
[63] Goodchild 2009:82
[64] Ibid
[65] Goodchild 2009:83,86
[66] Goodchild 2009:68,87

measurements and part observations which could be affected my numerous sources of uncertainty. With this logic, no geographic data can be perfect and the amateurs work can be just as exact and appreciated as Open Street map suggests.[67]

The definition of citizen science has been emerging. Countering the barrier that existed between professionals and citizens, arguing that science is mostly observation and conclusions.[68]

One argument to why Neogeography has grown is that the field of geography has mostly been recognized as a glorified way of portraying the world. Geographers have somehow failed to convince others that the field contains a substantial amount of theory and is not merely some sort of geo graphics. This view of geography has been fueled by services such as Googlemap.[69]

The different open geographical content on the net that is user driven and generated has been referred to as VGI, volunteer geographical information. This new wave of VGI projects is rapidly making way for the concept of citizen science.[70]

Summarizing the concept of Neogeography into a counter movement to the authority accentuated nature of geographical knowledge into fragmented community built geographical data.

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[67] Goodchild 2009:88
[68] Goodchild 2009:91
[69] Goodchild 2009:92
[70] Goodchild 2009:94

# 2.5 Public Participatory Geographical Information Systems

## 2.5.1 What is PPGIS?

Renee Sieber defines PPGIS as:

> "*Public participation geographic information systems (PPGIS) pertain to the use of geographic information systems (GIS) to broaden public involvement in policymaking as well as to the value of GIS to promote the goals of nongovernmental organizations, grassroots groups, and community-based organizations.*"[71]

PPGIS is a way of enhancing public participation. This may be done in many various ways, but for it to be considered a PPGIS project there has to be a spatial part or adaption and there has to be some kind of participatory influence.

Juliana Mantaay and John Ziegler sees PPGIS as way for nonprofit organizations to influence planning decisions and engage in urban development empowering local people in the planning process of their communities.[72]

## 2.5.2 History of PPGIS

The term participatory geographical information systems (PPGIS) were introduced during two meetings of the National Center for Geographic Information and Analysis (NCGIA). It was a reaction to the underlying disempowering feeling that science regarding GIS had obtained. As a counter measure PPGIS was meant to create new ways of the nonofficial voices to be included in the debates, especially as a way to

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[71] Sieber 2006:491
[72] Mantaay & Ziegler 2006:10

empower those less privileged in modern societies[73]. It was also aimed at being a way of increasing the transparency and participatory citizen influence in government policies.[74]

Most of the early meetings regarding PPGIS were strongly influenced by the earlier mentioned critiques of GIS. The non-inclusive nature of not only, the expensive and knowledge demanding GIS software's available, but also the poor transparency of the ways it was being used created a dislike regarding the discourse as a whole. PPGIS can be visualized as a reaction to the question of how to apply theories of GIS to socially inclusive endeavors.[75]

GISoc(Society) which was debating the why or if questions and have become the most noticeable critiques of PPGIS. It has also sprung forth a divide within the PPGIS community. Critiques of the PPGIS apps to no longer represent the marginalized but the advantaged began to rise. As an effect the concept of Participatory Geographical Information Systems (PGIS) was developed.[76]

The critical views on GIS are very present within PPGIS, some even link the concept directly to what is widely known as Critical GIS[77]. The concept of PPGIS and the earlier definitions of the "why's" and "how's" has given it a standing amongst urban planners, community developers and many more. The interest by these practitioners is mainly because of the collaborative possibilities of applied PPGIS. Visualizing planning online and weighting different solutions depending on collected data.[78]

PPGIS offered a unique way of mapping out social phenomena's and analyze demographic structures. To visualize ethnicity, religion, class, gender, employment and much more provides data for analyzing discrimination and segregation[79] in the urban landscape. This is of great importance for planners working for integration and against social barriers.

Still the young concept of PPGIS is constantly evolving. In public forums online and conferences the ever growing amount of individuals, who are engaged in the PPGIS debate, are meeting and discussing the future direction of PPGIS. The community is more than fragmented in the sense that more different views are taking part. There is a

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[73] Cope & Elwood 2009:24
[74] Schroeder 1996
[75] Cope & Elwood 2009:24
[76] Sieber 2006:493
[77] Schuurman 2001
[78] Schiffer 1998:193-211
[79] McCall 2003:549-573

mix of practitioners, researchers and hobbyists. The demand for PPGIS solutions is growing within most sectors, and the interactions in forums and conferences are creating intersectional bonds[80]. This sharing of knowledge is tearing down the non-inclusive feel of GIS by making it available to a larger amount of people. It also tears down barriers between other discourses due to its interdisciplinary nature[81], and in extension it opens dialog windows between fields of science.


### 2.5.3 Localized projects

PPGIS should be viewed as a localized activity created and fueled by unique values determined by the local settings[82]. It will always be filled with cultural and sociopolitical influences of the nation, region, city and community where it is to be implemented. This is not always taken into account when successful PPGIS project get copied to a new context[83]. Even though the initial view of two neighborhoods seems similar other external factors must be taken into account. These factors, such as laws, cultural aspects, environment etc., can make the projects ability to succeed obsolete due to unavoidable obstacles in the new context. That's why every PPGIS project has to be adapted and reworked for every execution[84].

The PPGIS projects doesn't only have to adapt to local prerequisites it should also be taken into account that it in many ways get created by the cultural flows of the local community[85]. It's natural to look upon these projects as fairly inclusive projects with bottom up characteristics.

There are also more physically oriented problems that might arise. For example the infrastructure and electrification development of the community can hinder the ability to utilize certain GIS applications and methods[86].

When tried in less equal societies positive results might appear absent due to some parts of the population being unable to participate[87]. Whether this inability to be part of

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[80] Sieber 2006494
[81] Ibid
[82] Elwood & Ghose 2001:19-34
[83] Sieber 2006:494
[84] Ibid
[85] Sieber 2006:495
[86] Ibid
[87] Ibid

a PPGIS projects origins from socio-economical, gender based, cultural or otherwise built inequality doesn't matter in the theoretical case. To get a good basis for community development utilizing PPGIS in the project it's needed for the community's population to be equally represented, otherwise the outcome would further width the segregation already present.

Although it's being stressed in this part that a localized view on PPGIS is necessary for the realization of such projects it's also important to keep the larger picture alive. Some problems in a neighborhood can be symptoms of something spanning across the whole society. For example the local community's lack of housing might only apply to a certain group of people. Scaling up the problem and localizing it in other areas as well points towards it being a problem for the society, not only the one community. If it's this big of a problem it's highly unlikely to be able to deal with it only locally[88].

## 2.5.4 Public policymaking processes

PPGIS is increasingly important in the policymaking processes of public organizations and the ability to influence is deemed fundamental to a sustainable development process. The application has to be locally tailored to work otherwise it could end up enhancing disparities in societies. It has to be adapted to the target population, for example young or technically able people might be more at easy and comfortable with participating in computer based participation applications than the older population.[89]

It's important to remember that to participate in creating GIS knowledge doesn't necessarily grant influence or power to partake in political decisions.[90] It could even be distracting the population from the fact that nothing they say or do actually makes a difference.

The need for an intermediary instance may complex things. This could be a developer, decision maker, some kind of a stakeholder or maybe an academic student. This actor is analyzing the contributions and makes their own imprint whether knowing it or not. PPGIS is surrounded by a somehow top-down work path where participants

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[88] Aitken 2002:357-366
[89] Sieber 2006:500
[90] Ibid

often mostly supply input but never really get to take part in the output part of the process.[91] This is contrasting against the fundamental thought about PPGIS where the key elements were that the citizen would get empowered and gain the ability to take part in both input and output. The difference is that of entering the development project early on to answer questions by the developers and then waiting to see the result contra answering questions and asking questions then follow through the process together with the developers. It makes for a more transparent and both ways project structure that creates the possibility of a long term relationship between developers and citizens.

The definition of PPGIS is not exact or of universal application. This makes for interpretation differences and makes the term differ depending on who or why it's being used. Even though it's traditionally being used in a context where the users aim to empower marginalized groups in societies it's not always a definition that holds. The goals of PPGIS differs greatly and spans from building models to more discursive theoretically grounded goals as empowerment, participation, social inclusion, equality and democracy enhancement.[92]

Even though PPGIS has been groomed for empowering marginalized groups and expand citizens influence in community planning sometimes the process of PPGIS has become the goal itself. For a process to be successful it also has to address and consider the problems from which the process was born. Even though the subject has been debated back and forth a solid solution to integrate PPGIS in decision making processes still hasn't been achieved. Stressing again that location adaptations are key to success and that cultural differences definitely matter.[93]

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[91] Sieber 2006:500
[92] Sieber 2006:501
[93] Ibid

# 3    PPGIS projects

Four projects have been chosen, they all have slightly different approaches to participation. They all officially aim to empower marginalized groups and grant influence to citizens. Virtual Slatihwaite was a pioneer PPGIS project that even though it had poor overall participation it inspired by being the first online participation project featuring a map and the ability to post comments on it. CommunityPlan it tries to put emphasize on rewarding the participants, making a PPGIS project that plays like a game that offers real world funding to the winners and their contributions. MyCity Gothernburg allows citizens to enjoy a 3d model of the city and discuss development plans. This project even allows participant to add their own 3d models in Gothenburg. The last project stands out because it approaches participation from the practitioners' eyes, knowing the citizens through continuous questionnaires for the citizens can prove valuable. The toolbox PlaceIt originating from SoftGIS supplies the software for this automatic data gathering and the ability to get this data presented on a map.
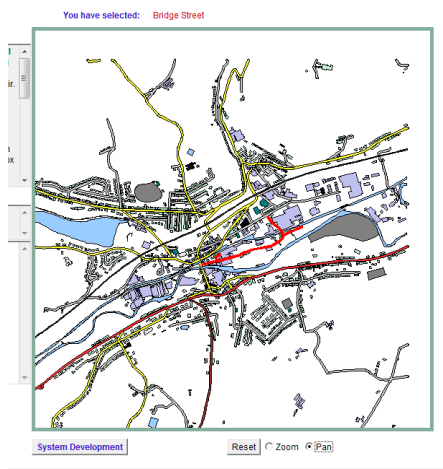
## 3.1   Virtual Slaithwaite Participatory Planning System

The Slaithwaite participatory planning system initiative was split into two parts. The initial idea was to explore new ways of involving the community in the decision making process. The first part was the making of a 1: 1,000 scale three dimensional model of a 2km² area of the Slaithewaite village. School children were also helping with creating the buildings after the landscape was created. This model was then used to gather opinions about the urban environment. The local

inhabitants were allowed to put flags with comments on the model that was then fed straight into the planning office and made known to the decision makers.[94]

Virtual Slaithwaite Participatory Planning System is considered the first PPGIS internet solution and was launched in 1998. It was made as a first try to make participating in development of the village easier by making the planning process available on the internet. In short it is a map of Slaithwaite was citizens can post comments that will then be categorized and analyzed by the planners and decision makers.[95]

The virtual Slaithwaite system is an online GIS map with two communication paths. The citizens can move around the map and select different objects, such as roads and buildings. They then get an information window with details about their selection and the ability to comment with suggestions on the features. This input is then saved and fed straight into the planning process for analyzing. The database that is created then stores the inhabitants' opinions on different objects in the urban landscape.[96] This information is vital for a socially sustainable approach that can last.



**Figur 2, Slaithwaite[97]**

This two way communication software that was the Virtual Slaithwaite Participatory System was pioneering software that showed the way for the later developments within public participation. It was an important step towards involving new groups of people in the planning process and therefore spread the influence to new areas and citizens. The

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94 http://www.geog.leeds.ac.uk/papers/99-8/, accessed: 2013-05-16
95 http://www.ppgis.manchester.ac.uk/projects/slaithwaite/ppgis.html, accessed: 2013-05-16
96 Ibid. accessed: 2013-05-17
97 http://www.geog.leeds.ac.uk/papers/99-8/, accessed: 2013-05-16
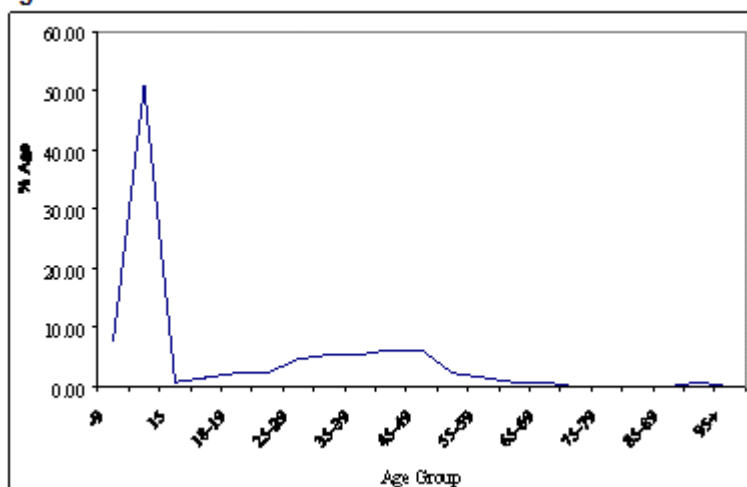
non-virtual part of the project in combination with the software created something of a community movement feeling, that everyone was a part of the village and had equal rights to influencing it.

There were a couple of problems identified while executing the project. Some groups were not as likely to participate as others, for example the late teens to late twenties were not as present in the physical part of the project. In most cases they didn't see the joy in spending their evenings contributing to building a model and putting flags with opinions on it. In these age groups the virtual part of the project might contain a more suitable approach that stimulates interest in participating.[98]

**Age Structure Profile**
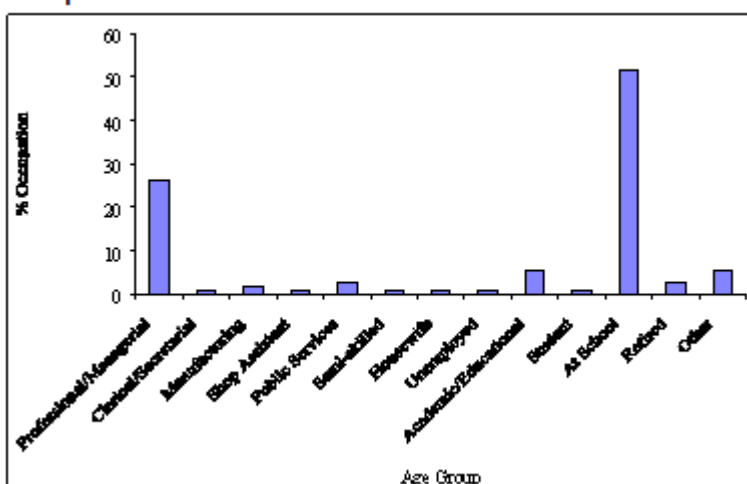


The graphs show the unequal age and occupation structure of the projects participants. With that in mind it's still a group that is not normally engaged in planning processes and this might fuel an interest that will last.[99]

**Occupation Profile**



**Figur 3, Slaithwaite[100]**

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[98] Ibid
[99] http://www.geog.leeds.ac.uk/papers/99-8/, accessed: 2013-05-18
[100] http://www.geog.leeds.ac.uk/papers/99-8/, accessed: 2013-05-16

### 3.1.1 Reflections

The map is easily interpreted thanks to the clear differences between objects; mostly this is achieved through the use of distinct colors. Comment feature works well, it's plain but efficient. The unequal distribution of age groups could be seen as a failure. This unequal age distribution involves a traditionally unheard group in planning processes, the youth. A group symbolizing the future and a group not aware of how the decision making process works. Educating and creating interest in participation amongst the youth can prove to be a great benefit later up the road. Combination of physical model building workshop and online GIS suit was innovative. The poor total participation and the unclear influence on the final decisions in the planning process makes the projects outcome a little hard to grasp. It has to be taken into consideration that this project was a visionary project that provided a model of citizen participation via GIS, a pioneer PPGIS project.

## 3.2 CommunityPlanIt
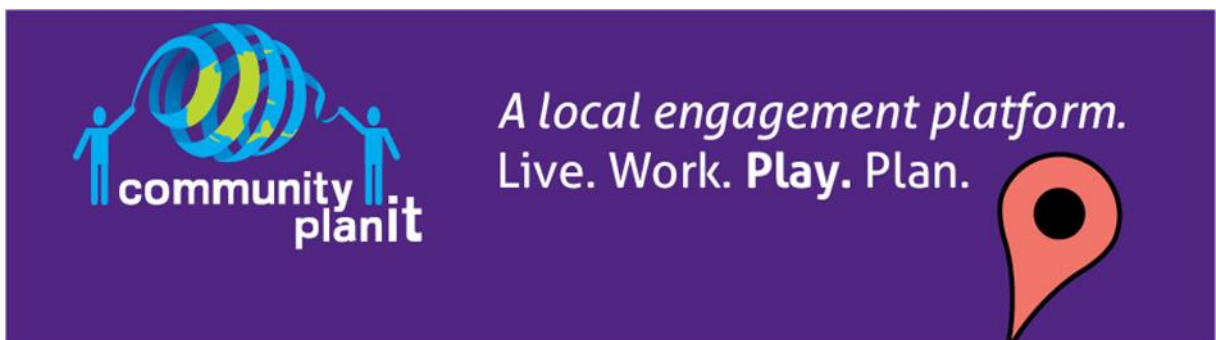


**Figur 4, CommunityPlanIt[101]**

CommunityPlanIt is a game developed by engagement game labs, a research lab at Emerson College. It's dedicated to finding new immersive ways of participatory decision making combining it with games.[102]

The players compete with different contributions to their community. They earn coins by responding to different challenges in the game. The coins they earn can then be pledged into different community causes. The three causes with the most coins pledged

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[101] http://engagementgamelab.org/blog/2012/08/02/community-planit/, accessed: 2013-05-17
[102] http://engagementgamelab.org/about/, accessed: 2013-05-17

get a real money donation. The game runs in sessions and after each session is finished a meeting is scheduled so that players, planners and decision makers can come together and discuss the outcome and how to move ahead with the acknowledged projects.[103] *"In each implementation, CommunityPlanIt will[104]:*

- *Teach players about important planning issues facing their community*
- *Allow players to problem-solve and dialogue with other residents to find solutions*
- *Enable players to send feedback and local knowledge directly to decision-makers*
- *Strengthen community bonds and build capacity*
- *Push players to challenge others to complete community-improving tasks*
- *Increase the perception of agency and social capital among a diverse range of community stakeholders"*

### 3.2.1 Reflections

First thing you have to do before playing CommunityPlanIt is to make an account. This process is pretty fast and after you have set up your account and profile you are good to go. The game plays in sessions, which pretty much translates into scenarios about different parts of the city. The case tried was Malmo and the scenario session was about the outdoor areas of Centrum. This game case was founded and is powered by Malmö City and the police in Malmö.[105]

In game you get missions that are symbolized by different buildings. To complete a mission you have to get past the bureaucrats that are blocking your way. This is done by answering questions and giving suggestions. The questions asked can be anything between "which is your favorite park?" to how do we solve the garbage problems?" You can also attach a video to your suggestions to get more people interested. Doing this you earn gold coins that can then be pledged to other suggestions in game.

There is a high score chart where the biggest suggestion providers are listed. After the session is done the cases that have gotten the most coin pledged to them

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[103] http://engagementgamelab.org/blog/2012/08/02/community-planit/, accessed: 2013-05-17
[104] Ibid
[105] https://communityplanit.org/malmo/, accessed: 2013-05-15

get some sort of funding. It is not clearly stated how much this funding amounts to. The top case gets invited to a discussion with Malmö City. Within the game it's also possible to chat and discuss ideas with other users.

The design is easy to look on and to comprehend. It almost covers up the fact that this actually is a questionnaire that has been spiced up by adding some reward into to the questions. The amount of players participating in the last session was at 127 total users' right before the project was ended.

## 3.3   My City Gothenburg

In the My City project in Gothenburg a website has been developed that lets the citizens explore the city in 3D, create comments about areas and buildings and even publish their own ideas. It is even possible to add your own 3D models into the urban landscape. The project went online 19th September of 2012.[106]
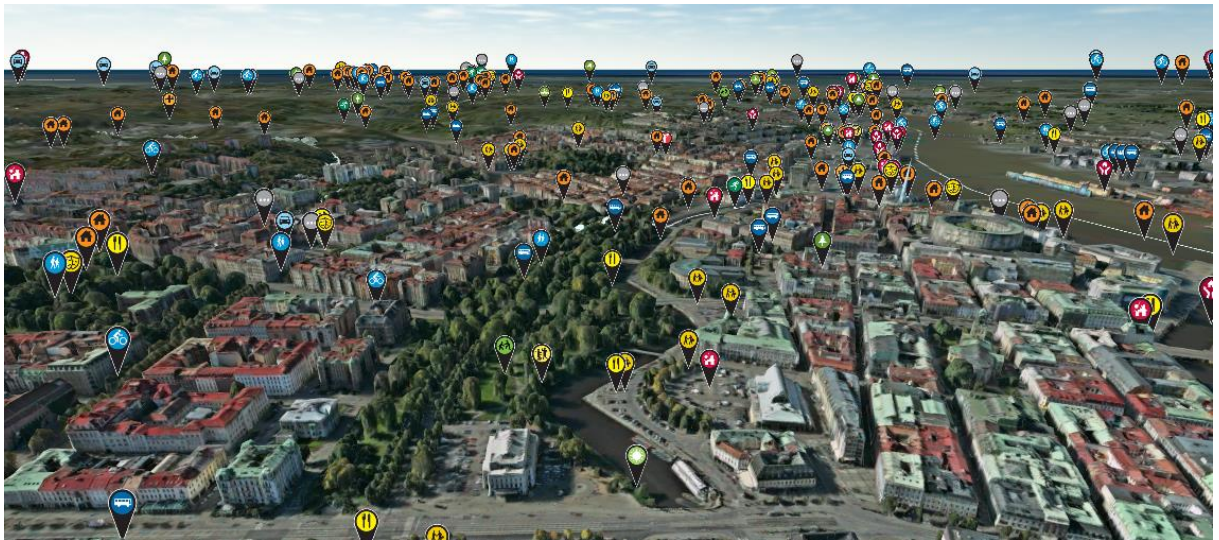


**Figur 5, Min Stad[107]**

The opinions differ between smaller suggestions, for example to put a bench by the water, to arguments about total urban renewal of a neighborhood. Some models added to the map are small others are entire building blocks. The add feature is not restricted except concerning advertisement and offensive remarks. The amount of suggestions

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[106] http://minstad.goteborg.se, accessed: 2013-05-15
[107] Ibid

being added is astonishing and shows the public's interest in participating and influencing their communities.

### 3.3.1 Reflections

This piece of online PPGIS is visually intriguing and filled with potential. The charts of "most discussed/most popular" make it easy to jump right into the debate and make your voice count. Adding official projects into the community to open up discussion is a good idea and it works fine. The participation is substantial which is visual through the amount of different user added symbols on the map. How the discussions really influence decision making is rather unclear.

## 3.4  Place it

Place it is part of the SoftGIS suit. It is basically internet based collection of surveys that aim to capture everyday life of humans, both experiences and behavior.[108]

It has been born from the ambition of urban planners to more accurately plan the urban landscape. When opinions and behavior is geo-spatially located, for example with address or geo-coordinates, the planning actions can be locally anchored. This is already being done with inhabitant dialog programs but with this kind of software it's made faster and easier.

SoftGIS surveys can easily be added to for example ArcGIS to analyze the data provided. It also makes it easier and more accessible for practitioners. To plan physical actions linked to behavioral patterns of the local population in a neighborhood makes for more indirect influence for the inhabitants.[109]

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[108] Kahila 2011
[109] Kahila 2011

The first SoftGIS was published in 2005 and was open source when released. It is currently based on the ESRI software suits but it is aiming for more open sourced alternatives future on.[110]

The case has been argued, that SoftGIS software reaches groups not traditionally involved in participation programs. The data collected can be both qualitative and quantitative. It has been seen as a welcome addition to other participatory actions, for example public meetings and discussion boards. In the tests so far (2011) 9000 Finns has participated in studies using SoftGIS. The survey has been targeted at different users depending on the character of the survey. Urban happiness and Child-friendliness has been analyzed against urban density using these methods. SoftGIS begun as a way to work with so called 4P planning, public-private-people-partnership, and to serve the aim to involve the inhabitants more in planning projects to create better living environments.[111]

The researchers working in the SoftGIS team hope that they can build a bridge between research and practice and between practitioners and inhabitants. The value of knowing consumerist behavioral patterns and experiences has long been considered important but it has been hard to fully incorporate this in planning projects due to the complexity and time-consuming nature of gathering data.[112]

The Place It project software is a tool for making map-based query investigations. The system doesn't require any browser add-ons or any installation at all. The customer can view the answers that the query has recorded in an interactive web-based map or download the material for use with other software, for example CSI, ESRI or MapInfo. The data created can be in the form of traditional question forms, or locating points, routes or areas.[113]

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[110] Ibid
[111] Ibid
[112] Ibid
[113] http://mapita.eu/, accessed: 2013-05-15

# 4 Discussion

The theoretical framework has been established. It points towards the importance of participation to achieve a socially sustainable community. It raises questions of how the intermediary instance should work, the planners that are in the middle between decision makers and citizens. The difficulty of equal participation in PPGIS projects due to many external factors, for example degree of computer knowledge or lack of interest, both can be addressed by applying different methods of PPGIS. This is being examined in the cases, CommunityPlanIt and Virtual Slaithwaite for example tries to involve new groups of citizens that are not traditionally taking part in participation processes, the youth. The Neogeographical aspects are emerging as part of the citizen science wave and makes peoples perceive themselves as more aware of the world. In this rapidly changing world with its interdisciplinary discourses PPGIS is one of the keys. If struggling for a more socially sustainable world it might be the most important key. The young discipline of PPGIS is being created and maintained by critics, arguing that this is the ultimate empowerment, especially for marginalized groups, that will change the way that citizens influence the urban environment.

## 4.1 Short summary of observations

The four projects chosen differ in many aspects but they also strike common ground in some key aspects, those of participation and visual spatial interpretation. Putting information on a spatial representation of reality to illustrate soft data, in common tongue opinions and non-physical data. They are also born from the intention to involve new groups of citizens in planning processes and decision making. To build communicational bridges between decision makers and citizens to enable smart and representative community development. In some of the cases which will be more in-depth analyzed below

there is also an educative intention that originates from the feeling that youth today don't understand how the decisions are made, who is making them and/or how to influence them.

## 4.2  Cases & Theory

PPGIS theory has been fueled by critical GIS, feminist geography and other such counter movements that try to reevaluate what GIS stands for. Disempowerment and to some extent Machiavellian scientific authority has signified GIS according to these movements. They got in common that they tried to take the concept and turn it into something contrary, as geographical systems build with equality and citizen influence in focus.

These value contingent words of equality, empowerment, democracy, counter marginalization and more, are fundamental to the discourse of PPGIS. To turn something associated with disempowerment into a tool for citizen participation and in the long term factual empowerment of marginalized groups of the society is quite a feat. This is not without complication, because all those value contingent words lack universally applicable definition.

There are different factions within the discourse that is built on this fragmented foundation of idealism. Discussions have even turned some individuals into questioning if PPGIS still stands for the values which created the field. The discourse of PGIS, mostly related to projects in development countries, is such a break away discourse that sympathizers argue is a new attempt at developing GIS systems for empowerment and citizen participation.

The cases examined are part of the PPGIS paradigm and also advocate the importance of their project to fuel the strife for equality and empowerment for marginalized groups. They also use these value contingent words to empower the righteousness of their causes. Place It is more oriented towards enabling planners to understand the need of the inhabitants than actually creating a discussion, but in the other cases a discussion is more or less fueled by the PPGIS project.

## 4.3  Questions

### 4.3.1  How is PPGIS applied as a communication tool between citizens, civil servants and decision makers?

Traditionally the participation process in planning programs has mostly been focusing on the information part. To inform the citizens of the changes of the urban environment that is planned. To influence projects citizens has often been limited to submitting formal complains. This process is not only hard and bureaucratic it also quite time consuming. In the light of Neogeography and debate about equality it has been important to simplify how to influence your environment. These new projects of PPGIS are meant to be empowering for marginalized groups and to extend the amount of citizen participation in societies. To sum up the new generation of PPGIS projects and the theoretical framework in a comprehendible way is not easy. The most direct and expressive way to sum it up is two way communications. There has to be a discussion between citizens, civil servants and decision makers. That way the urban development can stand on intellectually bearing ground, built to last.

### 4.3.2  Why is citizen participation important?

If we accept the paradigm of sustainable development as a societal objective, and the different sustainability categories, we also acknowledge the importance of social sustainability. Participation is an important part of social sustainability as it has been showed in the theoretical framework. Therefore the importance of citizen participation naturally follows the sustainable development goals.

The Neogeographical wave is also making its impact on the importance of citizen participation and possibilities presented by PPGIS. Citizens are increasingly aware of their surroundings and of the geography discipline. They are creating collaborative maps online and work with geographical content. The step to participating in planning the urban environment is not a huge one.

### 4.3.3 What experiences can be summed up?

Answering this question of the bachelor thesis is no easy feat, especially when the theories and empirical cases all point towards localization and adaptations as keys for successful PPGIS project. It's not a map with set coordinates that aims to answer this riddle but a rundown of the experiences and theoretical framework of the thesis. This considerations has the theoretical and empirical backing of the discourses. It's also important to remember that PPGIS is much more than a practical solution to participation, to look upon it as GIScience better signals the complexity of the field. That way the significance of theoretical discussions and debates don't get lost in the sea of technicalities. It's of great importance to engage in subjects of democracy and participation, how they interact and what implications might be part of this evolution.

Experiences and considerations from the theoretical framework in combination with the empirical cases:

- Creating a participation project should be considered more than mere intelligence gathering. It should be thought of as a two-way communication path that stimulates interest and collaboration between users of space, practitioners and decision makers. In this collaboration there should not be a starting or ending point, just an ongoing process of connection and discussion. That said it's important to startup the participation process as fast as possible when a community is being developed or renewed.

- Within these projects it might be considered wise to use a combination of physical and non-physical actions, for example by combining wanderings, discussion boards and public meetings with GIS maps and questionnaires. A meeting in person should never be underestimated but not everyone is fond of making their thoughts heard in social situations. This can turn these meetings into one man shows.

- The process path of each PPGIS project has to be clear. How to participate and how your influence matters. This is not always easy, but the reward

for obtaining it is better involvement. It's always hard to motivate someone to take some of their spare time and spend it in a project where they don't know for sure if it matters at all. No empty promises, this can't be stressed enough. The participants must believe that the project has consequences and is not a mere show for the crowds. The end product should be a representation of the discussion as whole. Follow up projects and discussion boards is great way to make the participants feel like they are taking real part in the process.

- The projects should be easy to access and fast to get involved into. Time is spare and patience is not always great. The smoother the registration and startup process, the bigger chance that citizens find the time and interest to involve themselves in participatory processes.

- Some processes have explored the possibilities of goals or rewards for completing different objectives. These goals that are part of the whole project don't have to have any value above the artificial, for example a high score or ranking chart. Especially the younger crowds seem to enjoy this. This makes the project more intriguing and rewarding to the participants.

- Tightening the bonds between theory and practical realization of PPGIS is important. Just like having a good background research in most projects, this is no exception. Many problems can be addressed before they are even manifested. The importance of localized projects is such an issue that can turn a formerly successful project into a failure. There might be only a few considerations needed to make it locally connected but without them the project can fail miserably. Generalization only work to a certain degree.

- In many PPGIS projects the participants are not representing society as a whole. This is because it's hard to make a PPGIS project that fits all citizens. In a participatory planning process there is need for multiple PPGIS models to involve the whole population.

- PPGIS can and should also be seen as an educational tool. Giving the participants possibility to influence and the knowledge of how the decision process work at the same time. The understanding of how to protest or suggest change in a planning process is poor all around, and even if you know the structure of it all the bureaucracy is hard and time consuming to break through. This makes for long and tiresome work that most citizens rather avoid.

- The reasons above and more is also why there is need of an easier way of getting your voice heard. The bureaucracy surrounding planning and development must be made easier to comprehend and less time consuming to impinge.

- Discussions about democracy, representation and participation must be allowed to escalate into a society debate. Some critics might disapprove the whole idea of active participation in planning. It could be looked upon as undemocratic to allow strong voiced citizens to overrule the representative's decisions. Is it in fact devaluating the people's representation system to allow such bypasses or is it strengthening the overall influence of citizens?

## 4.4  Future research

In this bachelor thesis the extent only allowed a brief scratch of the emerging Neogeographical theories. It would be interesting to research participation in planning processes and how Neogeographical ideas and thoughts influence the will and ability to participate. It would also be interesting to research how citizen's relationship to geography has changed the last 10 years now that geographical information is such a present part of our lives. These artificial geography systems that are used without hesitation are bound to leave a great impression both on individuals and the society as a whole. Overall there is much research needed within Neogeography, participation and their links to sustainability.

# 5 References

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## 5.2   Digital


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## 5.3   Figures

Figure 1, Bachelor thesis research structure

Figure 2, Carver et al. *Computers, Environment and Urban* <mark>*Systems*</mark>, *Volume 24, Issue 2*, *31 March 2000*, *Pages 109-125, Virtual Slaithwaite: A web Based Public Participation 'Planning for Real' System, 2000,* Available online at http://www.geog.leeds.ac.uk/papers/99-8/ (last accessed 27/5-13)

Figure 3, Carver et al. *Computers, Environment and Urban* <mark>*Systems*</mark>, *Volume 24, Issue 2*, *31 March 2000*, *Pages 109-125, Virtual Slaithwaite: A web Based Public Participation 'Planning for Real' System, 2000,* Available online at http://www.geog.leeds.ac.uk/papers/99-8/ (last accessed 27/5-13)

Figure 4, Engagement Game Lab, Emerson college http://engagementgamelab.org/blog/2012/08/02/community-planit/, 2012, (last accessed 24/5-13)

Figure 5, My City Gothenburg, Gothenburg City, http://minstad.goteborg.se, 2012, (last accessed 25/5-13)