VGI as a Starting Point for a Landscape Architecture Competition – a case study from the City of Vantaa in Finland

This paper describes the use of volunteered geographic information generated by citizens (VGI) or "crowdsourcing" in urban planning context. The paper introduces a case study of a landscape architecture competition which was aimed at providing the best idea for developing a bustling city district in Vantaa, Finland. The paper will share insights on the challenges faced when utilizing VGI in urban planning and introduce some of the innovative solutions that were used to tackle these challenges in this particular case. The focus of the paper will mainly be in the use of online participation methods while examining their use in conjunction with other modes of citizen involvement.

Located right next to Helsinki, Finland, the city of Vantaa has been experiencing a heavy growth of population for quite some time[1] and, therefore, steady development of the infrastructure and living environment is inevitable. During the summer 2015, the Land Use and Urban Planning Department of the city announced a landscape architecture competition to be held in Tikkurila, one of the fastest developing districts in the city.

Since the traditional landscape architecture competitions have a tendency to draw criticism from the public for the lack of openness and opportunities for meaningful participation[2] and since the debate over the architecture contest and the building of the Guggenheim Museum in the neighboring city of Helsinki was still ongoing[3],
the city of Vantaa decided that geographic information generated by citizens i.e. VGI was to be used as the starting point for the landscape architecture competition in Tikkurila.

The aim of this decision was to create a better platform for citizens to participate in the development process, to increase their awareness of the project as well as to facilitate urban change and its management. Meaningful participation requires that there is "societal activism" in a community in the first place and that this societal activism is defined by common features such as that the act is both "voluntary" and "self-motivated". The use of volunteered geographic information generated by citizens (VGI) was therefore seen as a good way to engage the community in the process of the landscape architecture contest and spur meaningful participation both spontaneously and with long term goals[4].

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[1]The population has grown at a rate of 1.2% over the past 5 years.
http://population.city/finland/vantaa/; http://www.stat.fi/index_en.html; Ref. 13.10.2016
http://pxnet2.stat.fi/PXWeb/pxweb/en/StatFin/StatFin__vrm__vaerak/?tablelist=true Ref. 13.10.2016

[2] One comprehensive analysis of the public critique on architectural competitions using more case examples and examining a longer time period can be found in: Peter Jokusch *"Post Occupancy Evaluation as a Tool for the preparation of Architectural Competitions"* in: Wolfgang F.E. Preiser (edit.), "*Building Evaluation*", p. 34 – 37, Plenum Press, New York 1989.

[3] One recent example relating to the Guggenheim Museum and the rejection of the first proposal to build the museum in 2012: *"According to the consultancy that ran the competition, the procedure was conducted to meet EU procurement guidelines, under the Design Contest procedure and in accordance with Sections 53 and 54 of the Finnish Public Procurement Act. Consequently, both stage one and two needed to be anonymous, which led to bewildering situations, like a public presentation and Q&A in Helsinki in January 2015 in which the finalist teams were not allowed to talk about the proposals."* Malcolm Reading Consultants: "*Guggenheim Helsinki Design Competition Conditions*" London: Malcolm Reading Consultants, 2014: http://www.averyreview.com/issues/9/competition-climate#fn:16 Ref. 12.1.2017
More on the the Guggenheim case: Peggy Deamer, "*The Guggenheim Helsinki Competition: What Is the Value Proposition?*" the Avery Review no. 8, http://www.averyreview.com/issues/8/the-guggenheim-helsinki-competition. Ref. 12.1.2017

[4] In meaningful participation the need to act comes from the individuals themselves and the "activism" can be either

The Land Use and Urban Planning Department of the city of Vantaa implemented VGI by collecting ideas and feedback from the citizens about their future demands and perspectives on the living conditions in the district. However, VGIbased participation requires that there are proper ways to participate which are also easily accessible to the public. Since the more conventional methods such as town hall meetings and workshops alone fail to offer sufficient access to the people due to their inherent restrictions on time and location[5], an online participation tool was used in conjunction with these methods to inform the citizens and to gather their ideas[6].

The online tool used was called "Harava" which has been listed among the Good Practices by the UN Human Rights Council in March 2015 under the category "Obligation to Facilitate Public Participation in Environmental Decision-Making"[7]. The tool is a map-based enquiry tool that allows the city to design an enquiry and publish it on the Internet for the citizens to respond. The respondents are able to mark their responses directly on the map along with any comments or ideas they might have[8]. The city's urban planning department developed and later on analyzed the data.

The first step towards the competition was taken in August 2015, when the citizens could contribute to the plans by leaving their ideas and feedback on the map with an online map-based survey tool. The feedback and ideas obtained were delivered to the participating landscape architect and urban planner teams as map-based and text-based data. The citizens' opinions and ideas served as a framework for the proposals of the participating teams. The proposals were aimed at matching the citizens' needs and meeting the requirements set by the review board[9].

In January 2016, the finalist teams and plans were chosen for further evaluation. To increase the participatory effect of the evaluation process, the citizens were once again given a chance to comment the plans in geographical context by using a map-based online system, as well as in workshops and town hall meetings, before the planning process moved to the next stage[10].

Of the participatory methods used in the project, online participation proved to be the most effective

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"long-term" activism spanning over a longer period of time characterized by certain long term goals, or, "spontaneous" which maybe a simple positive or negative reaction to some specific issue. Riikka Elo: "*Usability of PPGIS and public participation via Internet*"(in Finnish language)*,* p. 6, Master's Thesis, University of Turku, Department of Geography and Geology, 2014: https://www.sipoo.fi/easydata/customers/sipoo/files/2011_keke/kulttuurikaytava/riikkaelo_pro_gradu.pdf Ref. 13.10.2016

[5] This has been well researched and one good account can be found in: Roger Kingston, Simon Carver, Andrew Evans & Ian Turton: "*Web-based Public Participation Geographical Information Systems: An Aid to Local Environmental Decision-making*". Computers, Environment and Urban Systems 24: 109–125, 2000.

[6] http://www.vantaa.fi/instancedata/prime_product_julkaisu/vantaa/embeds/vantaawwwstructure/114324_01-Kilpailuohjelma-15-08-26.pdf (in Finnish language only) Ref. 12.1.2017.

[7] For more information, see Report A/HRC/28/61 here: http://www.ohchr.org/EN/Issues/Environment/SREnvironment/Pages/GoodPractices.aspx. Ref. 12.1.2017

[8] More information on the tool available here: www.eharava.com Ref. 12.1.2017

[9] More information on the contest and background is available here: http://www.vantaa.fi/tikkurilanjokiranta (in Finnish language only) Ref. 12.1.2017.

[10] There is a presentation of the results of the public participation here: http://www.vantaa.fi/instancedata/prime_product_julkaisu/vantaa/embeds/vantaawwwstructure/122497_Asukkaiden-kommentit.pptx (in Finnish language only) Ref. 12.1.2017.

way for obtaining feedback and ideas from the citizens. In comparison with the online participation tool, the traditional methods suffered from low participation rates despite the active marketing efforts of the city. The online methods reached an audience of roughly 500 people whereas the traditional modes of participation reached roughly 40 persons.[11] An audience of 500 people for a city the size of Vantaa may not seem like much, but if we look at the inquiries conducted with the VGI method and the participation rates in such inquiries in Finland, the number of responses received in an inquiry varies anywhere from 5 to 1400[12], therefore it can be said that reaching a population of 500 people in one project represents quite a good result in the Finnish setting.

However, despite the aforementioned obvious benefits of the online participation in urban planning, it also has its deficits[13]. The two common challenges that are encountered in this type of crowdsource-based urban planning have to do with 1) the quantity of data and 2) the quality of data.

By quantity we refer to the amount of feedback received by the urban planners. When using an interactive online survey tool, the topic might receive an enormous amount of feedback. This makes it difficult and time-consuming to process and analyze the data, resulting in a failure to include the collected data in decision-making. This is especially true in cases where the data are rather heterogeneous. The other end of the scale is naturally the lack or insufficient amount of feedback. This raises questions regarding the topic and communication: was the topic interesting to begin with, or, were the citizens made properly aware of the opportunity to give feedback?

As to the quality of data, the biggest challenge in crowdsourcing VGI in urban planning is to be able to get a sufficient sample from each socioeconomic group. This is related to the methods used in collecting the data. When collecting feedback with an online survey tool, an important factor to take into account is the level of computer literacy and the access to computers which varies among different groups. Also, it has been shown as a statistical fact that people that are more computer literate are also more active participants in political discussion[14]. Furthermore, people's awareness, ability, and interest in participating in decision-making varies as well which leads to cases where some inquiries may receive little or no responses at all.

Low response rates can of course be attributable to multiple and diverse reasons, but one of the underlying causes that has been identified by research and good practices relates to marketing. If the

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[11] Ibid.

[12] This is based on anonymous data obtained from Dimenteq Oy, representing 75 Finnish organizations that are users of the www.eharava.com tool. The sample is limited and the number of respondents per inquiry is always contingent on various factors, but this data sample showed that the number of respondents in the inquiries varied between 5 and 1400 respondents.

[13] Despite good efforts, Internet VGI tools fail to involve everyone. According to some criticism, they "empower and marginalize at the same time". Richard Kingston classifies the challenges related to VGI based participation into four categories: 1. Access to technology 2. The understanding of spatial concepts and IT 3. Materials and copyright 4. Trust. Richard Kingston: "*The Role of E-government and Public Participation in the Planning Process.*" Proceedings of the XVI AESOP Congress, Volos, Greece, 10–14, 7/2002.

[14] One example describing the connection of political participation, activism and voting behavior in relation to digital literacy as described in University graduates: "Digital literacy and all its gadgets (internet, mobile etc.) are closely connected (statistically significant – H1) with the political participation, political activism and voting behavior of the University graduates as verified in the current study of students from Gomal and Qurtuba Universities of Dera Ismail Khan". p. 13 in: Zafar Abbas Dr. Allah Nawaz: "*Digital-Literacy as the Predictor of Political- Participation a Survey of University Graduates in Dikhan, KP, Pakistan*" in: Global Journal of Human Social Science © 2014 Global Journals Inc. (US) - (F) Volume XIV Issue VIII Version I 15Year 2014: https://globaljournals.org/GJHSS_Volume14/2-Digital-Literacy-as-the-Predictor.pdf Ref. 12.10.2016

project does not have a well thought out marketing plan to get people's attention, it will be difficult to obtain a sample of any kind for any single inquiry. In most cases concerning small communities, cities or organizations, the lack of a proper marketing and PR strategy in a project utilizing VGI canbe seen as one of the main reasons for the scarcity of response data. This is often caused by the lack of professional know-how in marketing as well as the lack of understanding the need of such a strategy[15]. There are also cases where an organization chooses not to market an inquiry to satisfy the legal requirements and give out the image for the public that a more active participation was happening on the subject than is the case in reality. This approach often stems from the urban planners own views that "participation" is just another form of "ritual" or a "legal obligation" that is placed upon the planning process and does not necessarily contribute anything to the end result.[16]

It is also well documented and discussed in the literature that using online-based methods as the sole medium for participation will result in an unwanted and biased process due to some of the above-mentioned factors of inadequate access and computer literacy, but also due to the "digital divide" that the increased use of the Internet and its commonplaceness in societal functions today create.[17]
Some academics see the global and local information and communications networks as part of a large societal change where the polarization of the society is manifested in the divide between upper, middle and lower classes. In the new societal order some become producers, exploiters and influencers whereas others become passive receivers and consumers of said structures and information. [18]

The city of Vantaa approached these challenges in quality and quantity by mixing the methods of participation. Online participation was used together with the traditional modes of participation to engage a wider socioeconomic group. Also, to improve access to the online-based surveys, the respondents could utilize computers in all public libraries and other public spaces. To aid with the computer literacy related problems, there were assistants available in the libraries to help citizens respond to the surveys. An extensive marketing campaign was conducted to increase public awareness and to activate people both in the preliminary phase as well as in the secondary phase of the competition. The data obtained in both phases were analyzed and reported back to the public. During the

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[15] Greg Brown points out that many of the communal Internet based resources aim mainly at "one-way communication" instead of a "two-way dialogue", Greg Brown: "*Public Participation GIS (PPGIS) for Regional and Environmental Planning: Reflections on a Decade of Empirical Research*." URISA Journal 24 (2): 7–18., 2012.

[16] This is mentioned in the case of Finland in two separate academic studies done by Puustinen (2004: 47) and Pakarinen (2002: 90). Both researchers mention this issue on urban planners' attitude in their academic studies on participation in urban planning and land use in Finland.
Terttu Pakarinen: (Original Finnish title: "*Osallistumisen taustalla olevat ajatusmallit ja osallistumisen tulevaisuus*") p. 75–91, 2002 in: Pia Bäcklund, Jouni Häkli, Harry Schulman (edit.). "*part-taking knowers – citizens as part of urban planning*" (original Finnish title: Osalliset ja osaajat. Kansalaiset kaupungin suunnittelussa), p. 58–74. Gaudeamus. Helsinki, 2002. Sari Puustinen: "*Urban Planning as a Profession. Finnish Planners and the Challenges of the new Millenium*" (original Finnish title: "Yhdyskuntasuunnittelu ammattina. Suomalaiset kaavoittajat ja 2000 -luvun haasteet*") p. 102 in: Suomen ympäristö 715. Ympäristöministeriö, Helsinki, 2004.

[17] A good overview of the academic discussion and literature list can be found in: Sinikka Sassi: "*Cultural identity and participation*" (original Finnish title: Kulttuurinen identiteetti ja osallisuus) in: Pia Bäcklund, Jouni Häkli, Harry Schulman (edit.). "*part-taking knowers – citizens as part of urban planning*" (original Finnish title: Osalliset ja osaajat. Kansalaiset kaupungin suunnittelussa), p. 58–74. Gaudeamus. Helsinki, 2002.

[18] A prominent academic with this notion is Scott Lash. Lash calls the "powerless" lower class the "excluded third", which according to him consists of the poor, unemployed and people working with tools with low information content. Contrary to the other classes, the lower class is not able to find its place or possibilities in the Internet and is therefore mainly excluded. According to Lash this manifests itself also within cities, where only the part of the population that lives inside the area covered by the information structures is able to participate politically and culturally. Scott Lash: "*Reflective Modernization Politics, Tradition and Aesthetics in Modern Social Order*", Ulrich Beck, Andrew Giddens, Scott Lash (edit.), p. 145 – 227, Stanford University Press, 1994.

entire project, social media was used to boost awareness and to inform and gather feedback from the public.

In relation to the competition and to its outcome, the results from the public have so far been very positive. Now the project continues to the next phase, where the plans are put into practice. Real-life feedback on the positive and negative effects of the VGI-based planning in this case will become apparent during the next phase, where the related zoning revisions are submitted to larger public review, and the citizens as well as other stakeholders will have the legal right to demand changes or even halt the project entirely. In any case, the city of Vantaa has shown that it will continue to involve its citizens in the development of this area.

The case mentioned here discusses a Finnish example where all the required infrastructure related to information and communications technology (ITC) are in place and where the local democratic culture is very stable. It is therefore fair to ask the question, how does the use of VGI transfer to other parts of the world where the infrastructure and democratic conditions are not optimal?

Quite a lot of practical work has been done in developing nations, especially in Africa. The practice has shown the challenges of utilizing VGI in these areas. Some of the issues include the lack of proper IT infrastructure and the high price of GIS software. Also the method's dependency on experts and lack of said educated experts in these areas has proven to be a hurdle in some cases. Local culture, gender equality issues and political atmosphere are all factors that need to be taken into account when considering the use of VGI in developing areas.[19]

In view of the technology, significant strides have been made in the open source community to create GIS software and materials that are free to use for everyone. Representative examples of these efforts are the Open Street Map and Quantum GIS-projects[20]. Also, VGI tools that do not require a constant connection to the Internet are emerging rapidly. The trend is also in designing easier to use professional VGI tools, such as Harava, which will enable their use even in organizations where highly educated GIS experts are not readily available. To address the issue of the "digital divide" mentioned earlier, projects headed by known and successful entrepreneurs such as Mark Zuckerberg and Elon Musk aim at bringing the Internet to every corner of the world. Although it must be said that despite the fact that the projects are already underway, a lot of work and many hurdles still remain until they reach their maturation.

Against this background, it is fair to say that the VGI method used in the Vantaa landscape architecture competition represents an interesting and innovative way to tackle urban development related challenges in the real life context which will remain actual for quite some time.

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[19] Daniel Weiner & Trevor Harris: "*Community-integrated GIS for land reform in South Africa*". URISA Journal 15: p. 61–73., 2003, Ram Alagan & Seela Aladuwaka: "*Innovative Public Participatory GIS Methodologies Adopted to Deal with the Social Impact Assessment Process Challenges: A Sri Lankan Experience*". URISA Journal 24 (2): p. 19–42., 2012, Soheil Boroushaki & Jacek Malczewski: " *ParticipatoryGIS: A Web-based Collaborative GIS and Multicriteria Decision Analysis.*" URISA Journal 22 (1): p. 23–32., 2010

[20] Quantum GIS: http://qgis.org/en/site/ ; Open Street Map: http://wiki.openstreetmap.org/wiki/Main_Page Ref. 12.1.2017