Experiences from a Living Lab Trialling a Mobile Participation Platform

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1 ABSTRACT

The project b-Part adresses the currently low level of participation by introducing and evaluating a novel participation prototype utilizing contemporary mobile technology. As pervasive participation methods eliminate spatial and temporal barriers, it is anticipated that people are more inclined to engage in decision-making processes than with traditional forms (e.g. townhall meetings). Based on these considerations we developed a mobile participation platform that was evaluated in a real-world scenario over the duration of five months. This paper describes our methodology focusing on the conducted Living Lab and reports on experiences made during the runtime of the project. We hereby distinguish between experiences made by citizens and the authorites' view on the whole participatory process. Our findings show that there is a high acceptance of mobile participation methods among citizens and they want to have it developed even further. On the other hand, although city administration is often enthusiastic about novel participation formats, there are still challenges to meet regarding the definition of suitable topics for participation, a match between needs of citizens and city officials, the mapping of organisational responsibilities and long-term commitment to active participation.

2 INTRODUCTION

Governments around Europe are trying to improve methods how to integrate citizens in the public decision making processes (Michels, 2011). They aim to introduce new methods to broaden the scope of involved citizens as well as to encourage those previously less eager to participate, such as younger generations. Easy and attractive to use applications (user-friendly apps) making use of up-to-date technical devices can help to achieve these aims. In governing urban development, participation has been long encouraged and organised especially related to urban planning. In that field, the penetration of mobile devices (in EU, almost every adult citizen has a mobile phone, and in near future, majority of users will have a smartphone) provide new opportunities to collect citizen input directly from particular sites. The technology enables for instance location-based polls with maps, pictures and Augmented Reality (AR) applications to represent and visualise issues on portable devices for people to react and comment when they are momentarily on those sites.

Available applications (Desouza & Bhagwatwar, 2012) do not exploit this potential by far. The project presented in this work concerns the technical, social and democracy prerequisites of creating an advanced e-participation application, also addressing important aspects of developing functional prototypes in a user-centered design process and testing them in real-world situations such as a Living Lab.

In broader terms, the current state of mobile technology is supported by user-centred technologies that aggregate the contributions of individual users. As the 'open innovation' approach has proven effective in accelerating innovation processes, governments, too, have begun to seek ways to foster similar processes (for example Open Government or Government 2.0). Coupled with it is the wider social change brought about social media and user-generated content as well as the shift regarding political participation from traditional forms to more direct and individualized froms of expression (Dalton, 2005). Instead of an indirect involvement characterized through representation by others, the trend points towards a direct participation where citizen take personal action. In this context, the b-Part project aimed to create a manageable framework for pervasive citizen participation in urban surroundings. The project investigated novel concepts and solutions for citizen e-participation based on the pervasive computing paradigm utilizing latest mobile technology (smart devices) and appliances embedded in today's technically enriched urban environment. One goal in this context was to determine the requirements and explore the contributing factors for achieving an effective and sustainable dialogue between citizens and city officials (see Fig. 1). We applied the Living Lab methodology in order to test the framework in a real world environment and be able to draw representative conclusions regarding the impacts of the actions undertaken. In context of this field trial we engaged a multitude of stakeholders including civic organisations, citizens and urban planners in order to meet the requirements from all involved parties. In a highly interdisciplinary approach and pragmatic setting

involving end-users through lab tests and urban field trials, the project combined user-centred pervasive interaction research with social studies (to explore the capability to engage citizens) while at the same time investigate democratic innovations (to ensure citizens' input integration into the overall political decision making process). The resulting tools, services and guidelines will help to promote and strengthen the involvement of citizens in urban governance by using contemporary technology.
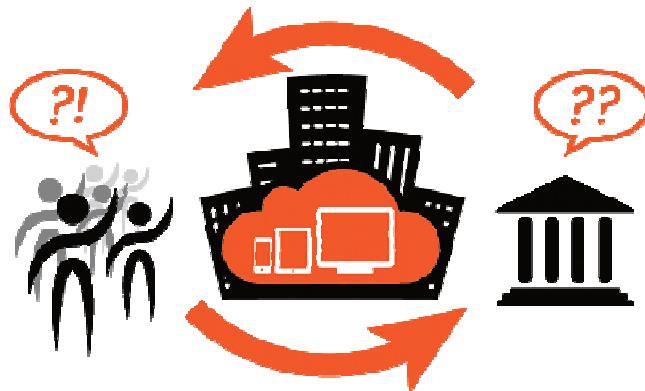
Fig. 1: An important goal of the b-Part project is to create a sustainable and dialogue-like participation process between the public and city authorities [own graphic].

In this paper we report on the methodology the project employed to develop and test a novel mobile participation platform. We present insights gathered throughout the entire project runtime focusing on the experiences of the involved stakeholders, here citizens and city authorities. The focus of this paper is deliberately on an 'anecdotal' description of the actual experiences gathered throughout the participation process. These are seen as a useful input for various streams of further activities within the b-Part project, as well as future projects with the goal to better integrate citizen participation in the public policymaking process.

3   RELATED WORK

In response to the low level of public participation, governments around the world are experimenting with novel forms of engagement with the objective to integrate citizens in the public decision process. Particularly in the domain of urban development, participation has a long history where participatory processes have been encouraged and organized. Assuming that the main reasons for non-participation include people not having the time to attend location and time restricted physical events, a current trend is to develop web-based platforms that allow citizens to raise their voice. Recognizing the potential of emerging technologies (e.g. built-in sensors), such platforms recently have also been introduced to mobile devices allowing engagement at anytime from anywhere. In a short amount of time a large number of civic apps were developed by various cities across the world. Most of these apps serve information dissemination purposes or fall under the category of so-called reporting apps allowing citizens to notify authorities of issues in the city. The majority of current civic apps however do not exploit the potential of location-based input enriched with additional information (e.g. pictures). Especially mobile applications for urban planning only allow for a one-way channel with authorities (Ertiö, 2015), where citizens can report nuisances related to urban infrastructure. Only few examples provide a more substantiated feedback than a one-word response signalising a status change. When going into more detail, officials answer citizens' input by giving thorough comments explaining reasons behind a decision.

When talking about public participation methods and tools, it is important to be clear about the terminology. E-participation, an academic discipline investigating digital public participation methods, is highly interdisciplinary involving a variety of backgrounds. This resulted in a plethora of terms being used for the same concepts as well as misunderstandings when using the same terms but meaning different concepts. The list of related terms include citizen participation, civic engagement, political discourse or discoursive democracy, to name just a few. To avoid future confusions and facilitate distinctions, there is a need for a standardised terminology. In the context of this paper we understand public participation as the practice of

inviting people to take a more active role in community relevant decision-making and thus public life by way of offering them solutions that are utilizing information and communication technologies (ICTs).

An effective approach to differentiate methods and tools with the objective to engage the public is to focus on the underlying objective that informed to participatory process. The goals often determine the possible and resulting level of engagement. A recent typology that provides a clear distinction between engagement methods and is also applicable for e-participation platforms, is based on four communication strategies: Telling, Asking, Discussing, and Deciding (Rucker, 2015).

In Telling approaches the objective is to merely inform the public about development plans or upcoming changes. Here the public is only in rare cases able to take an active part, classifying Telling approaches as uni-directional communication methods. Examples include traditional websites of for instance municipalties offering information about the size, population and important figures and people within that community. A concrete example is the website developed to provide citizen with informations about the redesign of a major shopping street in Vienna.[1] Althoug the name of the site suggests it to be an interactive or at least responsive platform, the website merely summarized information and statistics about the progress of the construction.

Asking appraoches are basically crowd-sourcing strategies initiated by municipalities or other offical bodies in order to get insights about people's opinions, viewpoints or even new ideas. Although enabling the public to take an active role in decision-making processes, most instances of Asking examples do not go beyond this limited one-way channel. Only few examples of Asking appraoches eventually feed the findings from such platforms back the (participating) public. One of the examples for Asking methods is the platform of the City of Dresden,[2] Germany, which has already been used for a list of purposes. The basic idea here is to employ the platform whenever the urban planning department requires input and feedback from the citizens regarding development plans.

While Telling and Asking strategies are more or less uni-directional approaches to engage citizens in decision-making, Discussing and Deciding strategies aim for an interactive and ongoing two-way communication between citizens and city authorities. The difference between the two strategies is that Discussing methods are a blend of crowdsourcing and debating with the objective to both inform and get relevant input (i.e. ideas, concerns) from citizens, Deciding approaches focus more on the actual decision-making instead of gathering options and alternatives. Participation methods following the Deciding strategy not only view citizens as consumers of solutions provided by authorities, but as partners with whom authorities collaborate to find those solutions. A good example for a Discussing platform is Betri Reykjavik[3] that is utilized by citizens of Iceland's capital to engage in urban planning and urban life by proposing and discussing concerns and solutions. In fact, there are only very few platforms that meet these criteria, with participatory budgeting sites coming closest. Muncipalities involving citizens in budgeting do so by allocating certain amounts of money for this specific purpose, inviting citizens to propose changes or new ideas for which public funds should be used and then collaboratively decide on which ideas will actually be realized. An example for such a platform is the Bürgerhaushalt Lichtenberg which is used by a district of Berlin, Germany.[4] The mobile participation platform described in this paper can be characerized as Discussing platform as it mainly aims to engage people in discussions and gather insights from them, but also aims to give participants the opportunity to influence decisions.

4 METHOD AND DATA

In a highly interdisciplinary approach, the project explored the technical, social and democracy prerequisites of creating e-participation apps that encourage an effective and sustainable participation. As such b-Part combined user-centred pervasive interaction research with social studies to explore engagement and activation, and research on democratic innovations to ensure integration into the overall political decision making process.

The project itself can be broken into three main parts, which are described in the following section. The first step was to gather requirements for pervasive participation systems. Insights from this analysis were then fed

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[1] http://www.dialog-mariahilferstrasse.at/

[2] http://dresdner-debatte.de/

[3] https://www.betrireykjavik.is/

[4] http://www.buergerhaushalt-lichtenberg.de/

into the development of the prototype, which was iteratively improved based on findings from smaller user studies. In a second step, the resulting mobile participation platform was trialled in a longitudinal field study. The last phase of the project is characterized by the evaluation of the data gathered throughout the project.

4.1 User-centred design process

In the beginning of the development process for our mobile participation prototype but also of the entire project, a requirements analysis was necessary to determine barriers and contributing factors in public participation processes. We started with a broad review of existing systems. We then moved on to assessing requirements in the field by conducting small scale user studies. For these studies we employed functional prototypes, where we initially focused on the system itself by testing variations of input modalities for interacting with the system. With our overall goal being to explore novel concepts for pervasive participation methods, we conducted these exploratory studies using a public screen. These first studies explored novel interaction techniques (e.g. display pointing) as well as compared people's preferences for more private or more public (= visible) means of casting a vote (e.g scanning a QR code, clicking buttons). We found that if provided, direct voting opportunities are clearly preferred while providing mobile voting opportunities do not significantly increase the overall participation rate (Baldauf et al, 2013). Due to limited availability of large public screens at our trial site, we utilized mobile devices as participation medium for the main trial as well as smaller side field trials.

Based on findings from both our exploratory studies and review of existing works, we developed a first prototype for the mobile participation platform. The concept of this prototype was then evaluated in a small-scale field trial (Thiel et al, 2015). For this study our analysis focused on the acceptance and actual usage of specific features of the prototype (e.g. being able to post a picture). After incorporating findings from the field study and minor bug fixing, the second iteration of the prototype was tested in another field study by a group of participants that used the prototype while walking around a pre-defined route in a city district (Thiel & Lehner, 2015). Participants commented positively on the concept, highlighting the benetfits of being able to participate on the spot. Again, comments and suggestions from participants were integrated into the design of the prototype. This third version was then presented to officials and urban planners of our Living Lab site. During discussions about the actual integration of this tool into their processes, it was decided to develop a web-based dashboard for the authorities to reply to input coming through the app in order to facilitate the process of replying to citizens' input. Apart from the idea to integrate social network sharing buttons into the prototype, both urban planners and city officials seemed to be content with the features and concept of the mobile participation platform.

4.2 The prototype

In a user-centred research and design process, a novel m-participation concept which enriches in-situ/mobile participation with pervasive gaming features (mobile location-based games combining digital objects and tasks with real-world locations) was developed. The concept features several novel opportunities which go beyond traditional reporting apps. For example, social interaction among the citizens as well as teamwork is encouraged and rewarded. Aiming to encourage co-creation and open innovations through bottom-up initiatives, citizens may not only report issues but are enabled to create polls on topical issues for their neighbourhood to uncover so far unknown or neglected concerns and citizen views.

Based on the participatory sourcing approach, the basic idea of the m-participation prototype is to allow citizens to pro-actively raise their voice proposing own ideas or bringing issues to the attention of authorities but also answer to official inquiries providing authorities with relevant feedback (e.g. on development plans). A central element in the application are so-called contributions, which are automatically geo-referenced pieces of content that can be augmented with relevant pictures of the area. Contributions are displayed on a map view and are openly visible to all users. These posts can further be commented and voted upon allowing citizens to discuss topics. Authorities were encouraged to join those discussions by contributing relevant facts, forwarding ideas and issues to responsible departments as well as communicating decisions. The current status of a contributions was further visible in the detail view of that post, giving users a quick indication of whether it had already been considered. City officials and citizens have the same user rights within the application, merely an icon next to the username of city officials allows to differentiate between the two user groups. Discussions are not restricted to a specific topic enabling users to talk about almost any

topic of their interest. Missions, which are in-app tasks on the other hand ask for input to specific topics. As urban planning lends itself very well to participatory processes, most of the missions created by city officials (official missions) addressed themes related to urban planning. One of such missions in the Living Lab for instance asked citizens whether they would favour a bridge connecting a near peninsula and if yes, whether a restaurant should be built next to that bridge.
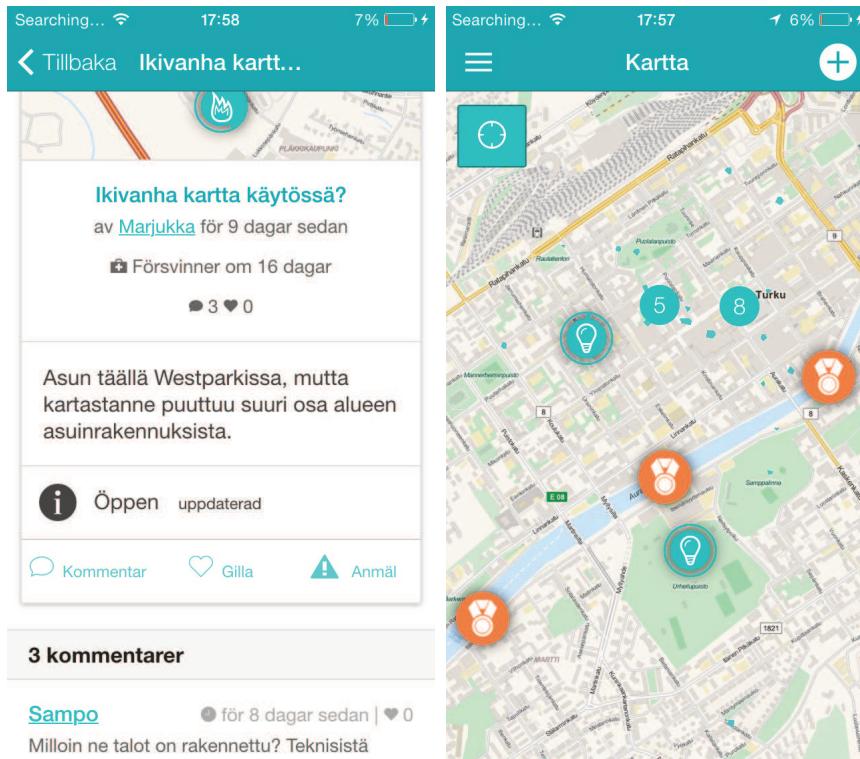

Fig. 2: Screenshots of the mobile participation platform.

4.3 Living Lab

The novel m-participation was evaluated in a longitudinal field study in a city in Finland. Fundamental for achieving an effective participation process is the involvement of local authorities as they respond to citizens' input. Receiving feedback in turn is the key aspect for making engagement relevant for citizens. Hence we employed a Living Lab methodology that involved both local authorities (i.e. city officials and urban planners) as well as residents.

Having been introduced into urban research in the mid-2000s, the method of so-called Living Labs has quickly gained popularity among researchers. The main advantages of Living Labs is that they involve a multitude of stakeholders in processes, thus allowing to connect research to public and private stakeholders with citizens. While projects applying the Living Lab methodology come from various disciplines with differing interests, the core objective of Living Labs is to co-create and co-design products and services that help improve the living quality in cities (Edwards-Schachter et al., 2012). As such Living Labs are particularly prevalent in product-based laboratories, where new products or services are evaluated by users in artificial living environments. Connecting research and therefore also innovation development with the actual living envronment is another objective of Living Labs. In their real-life environments potential future users help shape and create new products and services making them more competitive and hence more likely to succeed. Through this close involvement in development processes users become co-creators. It has been argued that this practice will eventually transform our product-based economy into an innovative service economy where users are placed in the centre (e.g. Pascu & Van Lieshout, 2009; Mulder, 2012).

With public participation becoming increasingly important, existing definitions of co-creation were extended not only to characterize products and services as an outcome of the partnership of two or more stakeholders (Tanev et al., 2013; Allen et al., 2009), but also the collaboartive process in itself. The latter is applicable in particular for social-centred Living Labs that largely revolve around the idea of co-developing cities and improving living spaces (Franz, 2014). Here outcomes do not necessarily have to be tangible but are labelled as "social innovation" (Franz, 2014). Given this framework, the b-Part Living Lab can be characterized as

being both socially-centred and technology-centred. Technology-centred because through participants using and commenting on the employed participation platform, the research team received valuable input that informed improvements to the service. The social innovation focus arises from the discussions and ideas that will evantully be realized.

The Living Lab lasted from June to October 2015. During those five months the application served as official channel for soliciting citizen input of the City of Turku. Being a characteristic of Living Labs, we did not recruit any participants for this trial. In order to spread the word about the existence of the new engagement method, we relied on common marketing strategies such as posting articles in established newspapers of the city and contacting community groups. During the first month of the Living Lab we furtther operated a small booth near the city centre in a relatively busy shopping centre staffed with two researchers, who would explain the mobile application or provide background information about the trial. Approximately halfway through the trial we further set up tangible signs (about A4 size) in locations of missions in order to catch people's attention on the spot. Due to this lack of a structured recruitment phase and the participation platform featurering a light-weight registration process, we did not know for sure who (in terms of socio-demographics) were using the prototype at any given time. To compensate for this, we integrated a survey into the mobile application that opened upon registering and asked about socio-demographics as well as other project related statistics such as attitudes towards urban planning or experience with mobile devices. We logged activties within the applications (e.g. posted contributions and comments) in the backend. At the end of the trial we distributed another questionnaire among participants asking about their experience with the participation platform, the in-app discussions as well as the trial itself. As we had a large amount of so-called non-active users (participants who never became active in terms of generating content), we conducted interviews with some of these participants to gain insights into the reasons of their behaviour.

5 EXPERIENCES

To the best of our knowledge the b-Part Living Lab is the most profound longitudinal field study in the domain of mobile public participation. During the five months period but also prior to the launch of the trial and afterwards, we were able to collect rich data and experiences that help a) understand the potential of mobile participation, b) inform future mobile participation prototypes but also c) design Living Labs that enable both a throrough evaluation of a product as well as enable social innovation. In the following section we summarize the experiences we made in the course of the project, structured by involved stakeholders.

5.1 User aka citizens perspective

During the actual Living Lab the research team had only very limited personal contact with participants. As we only had their e-mail addresses (which to some extent were fake addresses or contained typos), reaching out to them would have been problematic. In order to still receive feedback during the trial from actual users, the research team organized and participated in a series of events all relating to the broader theme of improving city life and technologies. Personal communication with attendees, which were citizens, city officials and local business owners, we gained insights about citizens' experiences with the application.

Our first finding relates to people's expectations when being offered the chance to trial a novel technology. A disclaimer that was displayed after opening the app for the first time, informed users about the background of this application telling them that it would serve as an official channel for communicating with the City of Turku for only a limited period of time in which the system would be evaluated in terms of fitness for public engagement. The disclaimer further highlighted that the mobile app had been developed in the context of an EU-research project. The text was intended to both be honest with citizens about the context of this trial entailing that findings from it would be used for research purposes (i.e. publications, presentations) but also to keep expectations in check.

Despite our attempted expectations management, citizens viewed the mobile participation prototype the same way they would any other app they downloaded from the app stores. Hence, citizens showed hardly any tolerance for slowness, shortcomings or crashes of the system. For them the prototype was a product. In the field of Human-Computer-Interaction (HCI) it is common practice to evaluate prototypes, which are varying degrees from being ready for market, in small user studies. Introducing a system in Living Lab settings and

hence deploying the system to a broad audience, requires a different starting point. Here participants expect no less than a fully functional and stable product.

Overall, citizens seemed to accept mobile technology as a means to engage in public life and communicate with authorities. Findings from our two surveys confirm that citizens perceive participation with mobile technology as promising and worth developing. Especially the advantage of participating on-site was considered highly valuable. Despite these attitudes that encourage to further develop mobile participation, citizens also wished for a complementary web-based participation service. Confirming Korn's (2013) presumptions, citizens expressed the need for having the opportunity to sometimes reflect more on their contributions or discuss matters more deeply than they would when being restricted to typing on a small touch-based keyboard.

Related to the aspect of in-situ participation are our findings regarding the so-called NIMBY (not in my backyard) effect. The theory behind this effect is that citizens would be especially motivated to participate in situations where something is planned to happen or be constructed in the vicinity of their home that they oppose to. According to the theory, the desire to prevent something in one's community, citizens who normally do not engage would become active. Findings from our study contradict the theory behind the NIMBY effect to the extent that we found that people not only want to participate in discussions regarding the place where they live, but also in those parts of the city they are interested in. In fact, citizens are as interested in developments and general mattes concerning the city centre as they are in their own residential districts. Topics that gained most interest and thus were the most discussed were traffic planning and public spaces. This high interest beyond the fictive borders of one's centre of living implies that the concept of a community in the context of urban planning needs to be revisited.

The majority of our participants were highly educated and displayed an above average interest in both urban planning and politics. While we succeeded to both include the elderly and the younger generation in the trial, the socio-demographics of participants of the Living Lab show that there is still work to be done to include other society groups (e.g. with low levels of education). With the nowadays high distribution of mobile devices, ownership of and access to the necessary technology was replaced by something else as the main barrier to participation. Involving these so-called hard-to-reach groups and hence promoting social equality should be the focus of future work aiming to encourage more political engagement.

Another experience we made regarding citizens' attitudes towards public participation echoes the viewpoint of many others. Even though some participation methods are more effective in terms of engaging the public and mitigating traditional barriers to participation, the critical aspect within public participation determining the success or failure of the participatory process is not the method that is employed to gather opinions and viewpoints from people, but the position of authorities towards public participation. This position comprises factors such as the readiness, skills and willingness of official institutions to make a sustainable and effective participation process possible.

5.2 Authorities perspective

As argued in the previous section detailing citizens' experiences with mobile participation, the exact method (e.g. using traditional means or digital technologies) is not the key to effective participation, but the mind-set of the governing body. Following this train of thought, the project presented in this article made an effort to integrate relevant authorities of the trial site, a larger city in Finland, early on in the design and development process of the participation platform. This was done through regular meetings and workshops with both city officials and urban planners. In this meeting we assessed their requirements for the participation platform in terms of data needed and interest in specific topics but also their general attitudes towards participatory processes and their commitment to take an active role in them.

Throughout the whole project and during all events members of the municipality presented themselves as very enthusiastic towards the concept of public participation and were eager to be part of a trial exploring new participation methods. In fact, being among the first European cities to have a mobile public participation service that went beyond uni-directional issue-reporting was a major motivation for them.

The mission feature mainly served the purpose of increasing the relevance of the trial for authorities by asking citizens targeted questions regarding urban topics. Missions have an optional time limit during which input and feedback would be collected. After this time limit missions would disappear from the app. In order

to encourage browsing the mobile app on a regular basis, new missions were introduced approximately every four weeks. In preparation for the launch of the Living Lab, we aimed to create a preliminary plan as to when to launch what mission. As the vast majority of the missions would be coined by the municipality and the urban planners, we invited those two groups to a workshop. The objective was to have them brainstorm potential use cases to be addressed in the participation platform. Both groups actively engaged in this exercise proposed a plethora of ideas, questions and topics. When going through the list after the brainstorming session in a joint discussion round, we noticed that a great amount of the listed topics concerned were what we call quick-fixes. A quick-fix concerns a topic that requires little to no effort from the responsible city department to solve the matter. For instance one department responsible for youth and social services was planning a sports festival for the summer and wanted to know whether citizens would prefer the festival taking place in location a) or b). Another large group consisted of topics where citizens would indicate locations on a map for various purposes (e.g. where more bike racks are needed). When the research team specifically asked for topics where citizens would be invited to propose own ideas or indicate problematic areas or situations in the city, city officials reacted rather hesitantly to our request. They argued that regarding more complex problems and issues within the city they were already aware of opinions and viewpoints as people would already notify them of these issues through other means (e.g. telephone, personal visits). They further told us that people contacting them were always the same persons talking about the same problems and concerns. They assumed that those being active in the mobile participation platform would again be the same people or at least voice the same concerns, which would make the whole participatory process rather meaningless for them as they as the city authority would not gain any further relevant insights into the topics. Regarding particularly controversial topics, city officials feared heated debates and even shitstorms that would worsen the situation and definitely not lead to a solution. The participation platform would in this scenario serve as an outlet for disappointment, anger and dissatisfaction, bringing together sceptical and disenchanted citizens. This collection of negative feelings and resentments might even lead initially optimistical citizens to become doubtful. In short, city authorities and urban planners embraced the concept of public participation in a sense that they could claim they as city they were active in that respect and even a trailblazer for innovative participation methods – as long as the input gathered through these participatory processes was in line with their current strategies and did not feed controversial discussions.

Our presumption regarding this divergent mind-set towards public participation was confirmed during the Living Lab itself. Particularly in the last two meetings before the launch of the field trial but also in other meetings, we stressed the importance of the city allocating an adequate amount of resources for responding to citizens' input. We further highlighted that this responsibility would require substantial effort and commitment from their side. Representatives of the municipality acknowledged this and seemed to be prepared as well as willing to contribute the necessary resources. To facilitate coordination and communication within the municipality and across departments, a person was chosen to be responsible for the central management of the provision of feedback to citizens' input. Both city officials and urban planners seemed to be aware and clear on the amount of effort the trial and their active participation it would require from them. Yet, they appeared confident that they would be able to handle it.

To make responding to citizens' input easier and therefore less time-consuming, we implemented a web-based dashboard to which only authorities had access. This dashboard followed the same principles as the mobile version and also contained the same features, but had the advantage of being accessible from a desktop computer hence facilitating text-based input. The dashboard further allowed to search all input based on keywords. We anticipated that city officials and urban planners would benefit from this tool by being able to respond to citizens' input in a more efficient manner.

During the first few weeks of the Living Lab authorities were quite active in responding and providing feedback. Halfway through the trial the majority of these responses became short "thank you for your input" notes in which they assured citizens that their concern or idea would be forwarded to the responsible entity. Because these entities were rarely part of the municipality and therefore were either not obliged (and thus motivated) to update the status of an original request in the mobile participation platform or simply did not know of the origin of the request, the process of handling that input often stalled or stopped at this point altogether. Authors of the respective posts and other users interested in the matter reacted upset to this lack of status update and started doubting the meaning of contributing to the participation platform. In these

cases, the research team intervened by asking the municipality for the status of the particular posts. In the majority of cases, officials replied that the matter was out of their hands and they were waiting for feedback themselves. An example of such a case was repairing bumps or cracks in streets. An external company hired by the city was responsible for fixing those issues. Whenever someone notified the city via the application of such a street related issues, city officials would contact that company instructing them to take care of the issue. After notifying the author of the post that the issue had been forwarded, according to the city officials their responsibility had been fulfilled. In most instances the commissioned company never reported back. After the first half of the Living Lab responses from city officials and urban planners had become so fragmented that the research team decided to install counter measures. As such, we started to compile all contributions that awaited feedback form authorities into one document that would be send to the municipality on a regular basis asking them to respond to the listed topics. Towards the end of the trial such a document was send to officials almost every week, reminding them of their commitment to provide feedback.

Interviews with a selection of city officials that were either directly or not at all involved in the Living Lab revealed two main reasons for this decline in feedback. These discussions revealed for one that only a very small number of city officials was actually aware of the trial and the existence of the mobile participation platform. This would explain why some departments never responded to posts they would have been responsible for. On the other hand, officials reported that a great amount of input coming from citizens through the mobile application was either not relevant for them (i.e. were not authorized to reply) or was not constructive in a sense that the post would contribute to any city-related conversation. Again other posts suggested ideas that were too bulky requiring the involvement of many stakeholders and complex considerations of factors. For the latter, city officials expressed the wish for a better informed public that would be aware of necessary processes and eventually lead to more substantiated and hence relevant input.

Interestingly enough, a large number of users of the mobile participation platform were city officials and urban planners that used the system as citizens suggesting ideas for improving quality of life and reporting issues themselves. This type of engagement accounted for more activity within the participation platform than replying to other citizens' input.

6 SUMMARY AND CONCLUSION

The presented project investigated novel concepts and solutions for citizen e-participation utilizing latest mobile device technology and appliances embedded in today's urban environments. Instead of merely informing citizens, the developed pervasive participation approach considered each level of e-participation by enabling, engaging, and empowering citizens with the ultimate aim of encouraging a continuous dialogue between a city and citizens by using contemporary technology. We described our methodological approach and experiences of the longitudinal field trial from the perspective of both citizens and authorities consisting of city officials and urban planners. Our insights of trialing a novel form of public involvement, in our case a mobile application, hold implications for practitioners such as municipalities but also commercial institutions that are aiming to increase the overall level of participation in their communities.

The reported observations show that both citizens and officials see great potential in the use of mobile devices to facilitate public participation and would like to see it further developed and applied on a broader scale (i.e. longer timeframe, different purposes). At the same time, there is also a great percentage of users who never actively became invovled with the system. While it underpins assumptions that some people are content with merely being informed about ongoing discussions, it also raised questions as to why these people chose not to become active. One explanation could be that some people are uncomfortable with generating text-based replies and would have liked other opportunities to contribute. Yet again, these people could have expressed their opinions through votes. Hence, it is important to provide a multitude of opportunities for people to engage.

Referring to the perspective of the authorities, the continous provision of feedback to citizens is of immense importance as this signalises citizens that they are being heard, listened to and that their participation causes impact. In a best case scenario, suggestions from citizens will eventually be implemented. Our trial showed that even though a municipality might be in favour of introducing novel forms of participation, actually implementing these is still a challenge. Succesful participation solutions are dependent on a continuous interplay between citizens, who are transparently informed about the status of their contributions and

discussion topics. Also, there should be support by future systems to define suitable topics for discussion (beyond quick-fixes). Summarizing, we argue that it is crucial to integrate participatory processes and associated tools into exisiting (policy) processes and structures. Opportunities and alternatives are currently being analyzed within the b-Part project consortium.

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