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Introduction and adaptation of an urban neighborhood platform for rural areas

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Abstract Various digital tools can be used to strengthen neighborhoods. This paper reports on a publicly funded participatory cross-sectional project in six German villages. In order to fulfill requirements of the villages, which were identified in citizen workshops together with local stakeholders, a selection procedure was carried out and the decision was made to use an already existing and known neighborhood platform. We demonstrate the challenges posed by the fact that the platform was not actually designed for the specific requirements of rural villages, but for larger cities or urban areas, so that various processes of adaptation and implementation had to be carried out. We reflect trade-offs and negotiations between research-led and community-oriented demands in the introduction and adaptation phase of the neighborhood platform in respect to usage motivations and roles of local stakeholder groups.

Introduction

In Germany, 90% of citizens live in rural areas, which face major challenges in terms of public services of general interest such as mobility, healthcare, commerce and availability of Internet access, which will increase in the future (European Network for Rural Development 2017, Löfving et al. 2021). Germany suffers particularly from the unfortunate combination of demographic change, slow digitization processes in rural regions and a corresponding lack of digitized services. Particularly problematic are dwindling social and family networks due to the migration of younger rural residents for professional reasons and the dismantling of public infrastructures for mobility and health and care needs. As medium-term solutions, the government is currently promoting local community-building interventions such as digitally-enabled neighborhood assistance and applications to strengthen social interaction, especially for the older population. In this paper, we refer to a research project funded by the German Federal Ministry of Agriculture and Food to explore and test digital and innovative solutions to support people in rural areas. During the three-year project period (2017-2020), digital and innovative everyday solutions were to be developed with the help of various participation processes (citizen workshop, focus groups). In this context, digitization was specifically understood and used as a tool to address several concerns at the same time. These include supporting organizational structures, relieving the workload of volunteers, and creating additional levels of communication to overcome distances. We report on the selection, introduction and implementation process of the standardized neighborhood platform *nebenan.de* and reflect on the associated challenges and opportunities of the project based on action research methods.

Related Work

The research to date basically indicates that neighborhood platforms, like other social networking platforms, enable social interactions to be decoupled from space and time, but on the other hand they re-establish a link to local social structures and local voluntary commitment (Masden et al. 2014, Kappes & Vollmann 2020, Kurtenbach et al. 2021). Moreover, they are not designed for interaction and communication to remain purely digital, but also to provide information about local events of encounter and for people to arrange physical meetings. In this sense, one can speak of “hybrid networks” (Schreiber et al. 2017) or “socio-digital neighborhoods” (Biniok et al. 2019).

However, these are very general insights, while our question is how such a platform can be successfully implemented in an existing neighborhood in the first place, so that people actually accept and use it. Vogel et al. (2020) developed a taxonomy of online neighborhood social networks and concluded that these networks are “socio-technical artifacts” where successful implementation in a neighborhood does not only depend on their technical functionality, but also on how they are embedded into the sociocultural context. Even more relevant are the works

of Renyi et al. (2022). From 2018-2021, they studied a project to introduce neighborhood platforms in 14 neighborhoods in Germany, Switzerland, and Austria. In the process, they encountered several challenges. First of all, the platform has to be publicized so that people know it exists. Awareness strategies and marketing measures must be applied and implemented. Furthermore, interesting content must be generated. In all of this, it is important to remember that there are different stakeholders with different interests and perspectives, and these often come into conflict with each other. As a main result, they say that they have learned three lessons, namely that digitization projects must fit into the overall strategy of the neighborhood development and must be driven by a committed (group of) responsible(s), secondly that choosing a technology is not a linear process and takes time, and finally that a high benefit is only achieved when many people actually use the platform. While Renyi and colleagues' study both urban and rural neighborhoods, they do not focus on the specific challenges of the latter. This is precisely where our study comes in and aims to make a further contribution.

Research Setting and Selection of the Platform

To meet the requirements of the funding program, the project sponsor imposed both rural and technical requirements on the village structures. Since the district consists of 53 villages, two selection procedures were carried out. In the first step, all localities were examined according to the number of inhabitants and geographical location, i.e. also Internet connection. In the second step, qualitative measures were carried out. So intensive discussions followed with the regional management of the region, the mayors as well as with the respective local chiefs and chairmen of the municipal associations of the remaining localities about the activities of the last years in the respective village communities. Thus, the choice initially fell on three potential villages A (500 inhabitants), B (860 inhabitants) and C (1360 inhabitants).

In order to identify regional needs and develop digital measures, citizen workshops were held in the respective model villages at the beginning of the project. Up to 30 citizens (16-75 years old) took part and worked in groups on the topics of village identification and tourism, mobility and services of general interest, organization and neighborhood, communication and village culture, and cross-cutting issues. An additional level of communication was a particular focus of the discussions and workshops. In this way, the topic of a digital communication platform crystallized as a cross-sectional topic. But the functions named for this level varied from digital bulletin board (information) to feedback and appointment tool (communication/organization). In addition, functions were named that were internally important for the respective village, but also cross-village, regional topics. Based on these requirements, the research team conducted intensive research and interviews with platform operators and users, resulting in the identification of 14 platforms. The idea to develop an own and cross-village platform or mobile application was quickly discarded. On the one hand, the own resources for the development of

a stable and above all technically usable solution were not sufficient. Both on financial, time and personnel level. On the other hand, and most importantly, due to the strong interest of the villages in a long-term and sustainable digital solution. This can be greatly simplified by an already externally developed and established platform, especially since it can be used directly.

As a result, both national and international platforms were selected and categorized according to the operators, the amount of transparent information, the promotion and funding, and the goal of the platform. Based on the requirements and collected information, five digital platforms could be narrowed down. The five platforms were compared and weighed based on the criteria of data storage, funding and costs for users, clear name function, registration options, categories and structure, and visibility. In the end, the platforms could be reduced to two. On the one hand, the neighborhood platform nebenan.de, which has been running since 2015 and has built up its own financing models, and on the other hand, the platform DorfFunk, which was developed by the Fraunhofer Institute IESE within the research project Digital Villages. Due to its reference to rural areas, the platform DorfFunk, which has been launched since 2018, proved to be a more suitable choice, as it aims to investigate the challenges of contemporary life in rural regions in relation to digitalization. However, due to the fact that funding after the end of the project was not yet secured at that time, nebenan.de with its experience, Germany-wide structures and constant further developments proved to be a suitable digital village platform for the project. The continuation after the end of the project is thus guaranteed, a central concern of both the project management and the users in the villages. However, it was already foreseeable that there would be some challenges in adapting it, as the platform was primarily developed for urban contexts. Nevertheless, there are no costs for development, maintenance and upkeep of the platform. It is ad-free, free for private users, and meets the highest data protection standards. Until October 2018, the platform had barely been able to gain a foothold in rural areas, so there was interest on the part of nebenan.de in cooperating with the project, as it was seen as a "door opener" for opening up rural areas. According to the platform operators, the reasons why nebenan.de has difficulties spreading in rural areas are: a low population density, so that the critical mass for an active platform is often not reached. To counter the problem of the low population density of the common model villages A, B and C of approx. 2,720 inhabitants, discussions were therefore held in advance with neighboring villages D (800 inhabitants), E (300 inhabitants) and F (1,100 inhabitants). The goal was to preserve and expand a geographically contiguous village setting for this potential cross-cutting project. After weighing the pros and cons with the village leaders, it was agreed to use nebenan.de for the project. This allowed a total population of 5,000 to be reached. The biggest concern of the communities was the excessive demands of implementing another communication channel, which could only be overcome with the support of the University of Siegen and the platform itself. So it was assumed that the introduction of a platform could only be done in close cooperation with the villages using methods of participation and action research.

Methodology

From the selection of the model villages to the introduction and appropriation of the neighborhood platform, various methods and approaches were pursued that can be assigned to action research. In addition to conducting citizen workshops and pre- and post-dialogs with responsible parties, the research team offered open technology workshops that were accompanied by further information campaigns. Especially when it comes to working with local stakeholders and identifying needs, because action research is explicitly democratic, collaborative, and interdisciplinary (Hayes 2011). Through participatory decisions about the appropriate platform, as well as its acceptance and adaptation, action research took place, according to Feldman, because villagers first had to explore and understand their own practices and then develop them further (Feldman & Minstrell 2000). Similarly, action research can be seen in the development and implementation of the different and adapted technology ideas, because according to Hayes, action research focuses on highly contextualized and localized solutions with an emphasis on transferability (Hayes 2011). For this reason, so-called "citizen workshops" were conducted at the beginning of the project, which fulfilled several objectives in the villages. In addition to identifying wants and needs for developing digital solutions, they served to establish initial contacts and introduce the project and the team to all citizens present. A citizens' workshop is a participatory process for citizens of a city and serves to develop and discuss common goals and visions. (Street 1997, Slocum 2003)

The invitation to these workshops was made by the local chief and the local associations. To support discussion and idea generation among the participants in the group, the topics and expressed contents were collected using the brainstorming method according to Osborn (1953). The top themes were pinned by the research team in advance, and all participants then had the opportunity to express their thoughts on each theme. The themes were clustered, sorted, and prioritized. For ease of reference, the citizen workshops were photographed and recorded. In addition to the citizen workshops, the project held focus group meetings, but these consisted of only selected stakeholders (village leaders and association chairs), the research team, and other gatekeepers (e.g., person in charge of the village hall, treasurer). In these, the implementation possibilities of the ideas and needs were discussed and decided on the basis of the citizens' workshop. The focus groups were thus understood as "[...] a participatory instrument, i.e., for the involvement of citizens in social and political decisions [...]" (Schulz 2012:11). The focus groups were recorded.

For the technical introduction of the nebenan.de platform, open user cafés or technology workshops were conducted, which can be understood as experience-based participatory design workshops. The experiential participatory design workshops essentially aim to bridge the gap between people's actual practices in their everyday lives and the digital platform's imagination

for meaningful technology support, i.e., to create a shared thinking space of future possibilities for using the platform, but also for further wishes and requirements (Müller et al. 2015).

The offer was addressed to all villagers and people interested in technology, the main goal was to promote the enjoyment of the platform, but also the understanding of being able to influence something about the project, e.g. design issues or features on the platform, by participating in the workshops. In addition to the technology and platform introduction, groups for technology issues were set up on the nebenan.de platform. To promote cross-village communication and increase the chance of getting a question answered, a cross-village technology group was also set up. This was intended to help people help themselves. The workshops were recorded, protocolized, and in some cases photographed with the consent of the participants.

Measures for the introduction and implementation of the platform

After the decision was made to use the existing nebenan.de service on the basis of the requirements analysis from the first public events and the discussions with the local leaders, an implementation concept was developed in planning discussions with the operators. These were adapted to the regional conditions. The activities for this can be arranged on three levels. On the first level are activities with all responsible people from the villages, who can be seen as trusted multipliers and door openers. On the second level, activities with the respective villagers are described to introduce and launch the platform. These include 1. information campaigns, 2. an online quiz and contest, and 3. open technology workshops. The third level refers to the adaptations of the platform based on the experiences and results of the 1st and 2nd level.

Information campaigns

In cooperation with nebenan.de, a "Your Village" campaign was carried out in all participating villages at the turn of the year 2018/19 to launch the platform, with each village using its own communication channels.

The campaign was accompanied by articles in the local newspapers with subsequent reporting and information events in the villages. One specific communication channel that could be used was the general meetings of the local associations, which take place annually at the beginning of the year. At these general meetings, the village leaders and the local associations intensively promoted nebenan.de. In addition to the meetings and newspaper articles, the local leaders distributed postcards with information and invitations to nebenan.de to all households. The campaign resulted in registration numbers in Q1 2019 that far exceeded expectations. A second campaign was launched in the villages in mid-November 2019, in which postcards were distributed to all households in the model villages via the village leaders.

The design of the postcards in both campaigns included universal invitation codes to keep barriers to entry as low as possible. These codes, generated by nebenan.de, enabled registration without address verification via ID card. In order to minimize residents' fears of trust, the postcards were written and signed in the name of the local chiefs in agreement with them.

Online quiz and contest

The company nebenan.de maintains a foundation that organizes the "Day of the Neighborhood" annually and throughout Germany with high-profile activities. In 2019, this day, May 25, was also used for the activities of the research project. The project team developed an online quiz to use this day for public relations. For this purpose, a platform was created using the online survey software LimeSurvey, on which questions about the local conditions of the individual villages were posted. These were, for example, photos, local idioms and dialect forms of terms, or specific knowledge questions about the individual villages. This content had been developed in advance with the local workshop groups. The quiz, i.e. the LimeSurvey application, was open for participation for four weeks, from May 1 to May 25. The intention behind it was to find a low-threshold access to bring the individual villages into exchange with each other, to make knowledge about each other visible and discussable. And all of this was done in a humorous and playful way in order to make the nebenan.de platform more widely known.

This online approach was also linked to a special celebration in a village on the day itself, the "Neighborhood Day". The inauguration of a new fire station took place, during which the quiz could also be completed on the day itself as a print version. More than 600 visitors took part in the fire department festival, which was again a good opportunity for the information campaign for nebenan.de. The cross-village winners were

Open technology workshops

In the citizen workshops, the desire was quickly expressed not to exclude older residents who have little familiarity with digital media, but to develop inclusive measures to help them use smartphones and Internet applications. In the period from July to December 2019, the project team organized six meetings in two villages, so-called "technology cafés", which were open to all participating villagers, where coffee, tea and cake were served and conversations could be held around the use of smartphones and tablet PCs. These technology cafés were held in village community centers. When asked about the motivation to attend the first workshop, one participant cited her children as the reason, "If you ask the kids [...] you don't get it explained," and another participant cited caution and concern as the motivation, "I have a smartphone, a tablet, a cell phone [... I go on the Internet [...] But I ask my wife how to download something [...] I don't know either because of privacy [...] there is so much text [...] so I would like to learn how to download something."

The number of participants varied at each meeting, usually around 10 participants. Typical topics were that people were looking for help with using various apps on their smartphones and tablets, but also, most importantly, support needs and start-up help with registering on the nebenan.de platform. Information about the meeting was also organized in a nebenan.de channel "Digital help for all" to enable exchange between participants and local volunteers who want to support the digital "beginners". In addition, some had a guilty conscience because the researchers each had a long journey (> 1 hour by car) and they found it morally reprehensible that the researchers could come for free. Phrases like "now you drove all the way and the others didn't come" were often said.

To maintain this support structure for digital skills over the model period, solutions were developed in the open technology workshops. In particular, networking with younger digital "professionals" was found to be helpful.

However, the idea of involving youth organizations did not work initially. Therefore, the researchers organized three more appointments for which other stakeholders were approached who might be interested in supporting the older residents. Eventually, two local supporters interested in technology (a former teacher and an IT specialist) already came forward, but the format did not work in the long run, as fewer and fewer participants came from the older adults as well, and the looming pandemic situation did not allow for more meetings.

Adaptations of an originally urban platform for rural areas

Definition of the village boundaries technology-wise

Since a district on nebenan.de can assume a certain radius of different streets, a village was defined as a municipality in consultation with nebenan.de, which is seen as a neighborhood in the city. For each village and municipality, the corresponding postal code was added, which applies based on certain defined boundaries. For this, the staff of nebenan.de used Google Maps as a geographical basis. Which is a standardized procedure. When the boundaries were presented, supporters of the team, who were also villagers, were not pleased with this procedure, as certain village boundaries are historically attributed to other communities regardless of geographic location. In the workshops, participants confirmed this case when they saw that their village belonged to a different zip code, which contradicted their perception of the villages' historically established boundaries. Technical limitations did not allow for further changes to represent the historically evolved boundaries.

Personalization of the start page

During the citizen workshops, it became clear that the local connection of the villagers plays an important role. With the introduction of the platform, this became clear once again. Thus, the desire arose to have one's own village presented in its exact boundaries, to present the most important news and dates on one page. Both for local villagers and for external visitors. On the one hand the community and the history are better represented, on the other hand also non-

members are to be motivated to participate by the regional reference. But also former villagers who have moved away and could thus stay in touch with village events are to be addressed. Thus, individual start pages were created, which is otherwise rather unusual for the platform. These location-based start pages were installed in such a way that they can be accessed before registration and entering one's own zip code.

Fostering networking between villages

In addition to the strong focus on interactions within the villages, in addition to an intra-village technical group on the platform, an inter-village group was set up for all project participants to support exchanges between the six villages. This channel was primarily used by all who interacted with the researchers in the citizen workshops and internet cafes. The group should be seen as an accumulation of various questions about the platform and technology that can be used across villages. Here, conversations for further discussion took place between the regular on-site workshops. In the longer term, these issues developed in the workshops and presented on the platform served as "tickets to talk about" (Svensson & Sokoler 2008) to bring people together across villages who would likely not have otherwise come into contact with each other.

High initial registration figures and declining usage figures

Due to the above-mentioned publicity campaigns with strong commitment from central local gatekeepers such as the village presidents and chairpersons of local village associations, the initial registration numbers were very high, so that one could speak of a critical mass in the metrics of the nebenan.de staff. For example, in the first twelve weeks of the introduction, the registration numbers were around 500 participants. This accounted for 30% of the households within the six villages. These registration figures are more than double those of the top 15 towns on nebenan.de, where the figures are between 4% and 14%. The research team was initially very pleased with the high registration numbers. On the one hand, because this exceeded the company requirements of "critical mass", but also against the background of the funding project and the perceived obligation to be able to communicate good figures to the funding body, which supposedly show a high level of acceptance. However, the usage figures measured in terms of entries on the platform show a different picture. Over 14 months of observation, a total of 250 entries were counted. Compared to the high number of registrations, this number seems quite low over the period of more than a year.

Discussion

For more large-scale considerations of digital infrastructures such as neighborhood platforms, it is natural to consider quantitative metrics. However, our example shows that it is worthwhile looking at appropriation practices as situated collaborative practices. With a

praxeological approach, based on an understanding of cooperation as the "*mutual making of common goals, means and processes*" (Schüttpelz, 2017:24) gives visibility to the multifold qualitative, generative and discursive aspects which make up the local fabric.

Roles and relationships in the local fabric

An important factor for the initial interest of many residents is the high recognition they give to the commitment of the village presidents. Many of them registered for the portal because they wanted to do these highly committed people a favour, as a kind of quid pro quo for their commitment. However, this also shows the duplication of roles and attributes of the social practices in the platform: the association presidents also have prominent roles and are thus mainly responsible for communication and information of the members within the associations. There was apparently an interest among some to maintain this structure and not to minimise their prominent role through their own contributions. It also shows that digital literacy plays an important role and, in the case mentioned, prevents a woman who does a lot of association work in her everyday life from seeing the portal as a communication platform because digital use is far from her mind. Despite the support and the learning environment in the technology cafés, more steps would probably be necessary for her to see meaning in the use of the portal for her association work. There is also a certain relevance in the relationship between participants and researchers as a motive for participation. But it is not sustainable because it is not intrinsically based. For this, more time and space would be needed for the joint exploration of local people and researchers of possible spaces for future uses of technology. This is similar to the findings of Ekeland et al. (2012), who show that "parachuting in" technology cannot be completely satisfying, especially when working with people who are not very tech-savvy.

Trade-offs: research-led vs. community-led

We have identified a key trade-off that involves both elements, technology-orientation and community-orientation. The example also shows challenges that are often visible in IT research projects that adopt participatory and action research methods. Action research is essentially oriented towards the local community, its needs, wishes and interests (Hayes 2011). In retrospect, one would have to ask here, what alternatives would there be to the platform for promoting social interaction within and between villages? A "pure" action research approach would have put the technology on the back burner for the time being and focus on the social processes in the first step.

The immediate appearance of the platform idea was due on the one hand to the specific funding format. But also due to the strong motivation of the village presidents, i.e. a specific stakeholder group. As long as this group of people was very active, they were able to exert their strong influence and interest their residents in the overall project and in the platform. But this level of motivation did not last long. In retrospect, we have to say that the balance between

"research-led" and "community-led" approaches was often not so well balanced. With the decision for the nebenan.de platform, the focus was then strongly on quantitative metrics, for which some actions were also carried out quite successfully. However, qualitative aspects such as learning spaces, the creation of meaning and the formation of new practices, co-design in the sense of the further development of roles and practices, and the processes of initiation were not sufficiently taken into account.

The CSCW literature on technology appropriation in general (e.g. Pipek & Wulf 2009) and specifically on the appropriation of older, non-technology-savvy people shows the importance of learning spaces or "meta spaces" in which different stakeholder groups jointly and discursively construct mental spaces of possibility. Spaces in which sense-making of possible novel digital practices can be practised and reflected upon (Cerna & Müller 2020, Meurer et al. 2018). In an ideal world, projects should be designed in this way, but unfortunately this is not always possible.

Portal usage motivations and activities on the platform

We attribute the high initial registration numbers to the strong commitment of local key persons. At the beginning, the village presidents and some association leaders were very present in the public events and in the subsequent citizen workshops.

In addition to their strong presence at the events, the village presidents also sent out the invitations to all households on their behalf. The key people seemed to enjoy extremely strong trust on the part of the population. This is evident from the fact that the participants in the citizen workshops as well as in the technology cafés did not question the platform itself. But, there was one person with an IT privacy background who initially had privacy and data protection concerns, but these dissipated over time. This was expressed during an introductory event, which also seemed important to him. The usefulness of the platform was hardly mentioned or questioned, but rather the desire to receive assistance with registration was expressed. If one looks at the individual categories of use and the related posts on the platform, it becomes apparent that predominantly rather official event announcements and association-related information were posted. Much fewer posts, as previously hoped, in other categories around neighbor help or marketplace with more personal content were posted. One reason could be that participants in the Technology Café meetings reported that they like to watch, but never post themselves. For the most part, only the same people would post contributions, for example the chairpersons of the local associations.

But there were also role differentiations among the committed people of the association. For example, a woman at a technology café meeting said that she could well imagine using the platform for her association work. However, there would have to be someone who would post the content first. She would not trust herself to do that, "even if everyone uses it, someone has to post the content, someone has to take responsibility ... I would do it, but I don't know how".

Conclusion

Digital approaches for the promotion of social interaction and social participation in rural areas are increasingly in the focus of funding initiatives, especially in order not to leave older rural residents behind and to use digital platforms as an element to secure their services of general interest.

This is often done with good intentions on the part of funding agencies, researchers and the central gatekeepers and decision-makers in rural regions. However, we see major challenges in bringing technology to regions with a low number of residents and diversity in terms of age groups, interests, digital literacy and desire to volunteer locally.

Especially if the technology is to be used sustainably and acceptance depends heavily on achieving critical mass in a given time window.

Mostly, trade-offs arise between the element of a more technology-led approach, which is to be coupled with participatory and action research approaches. This trade-off is usually present, but oftentimes not made visible. We find it important to make this trade-off visible and to look more closely at the practices, motivations, roles and relationships of and between different actors, especially when it comes to bringing different communities together through digital solutions. Despite the various challenges (such as reaching critical mass, communicating across villages, building participatory sustainable strategies, adapting the platform), the platform was successfully established within the villages and is still being used today. Nevertheless, even though the technology is already ready for use, the time for a trustworthy introduction must not be forgotten, especially since each village and community must be seen individually.

We therefore appeal to researchers in future projects to recognize these conflicts at an early stage and to initiate a participatory and sustainable implementation process from the very beginning.

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