Deployment of a community information platform in Santo Antão island

A case study from Cabo Verde

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ABSTRACT

We present a case study of a community media project development Alert4You and describe the process of fostering a local community information platform through socio-technical innovation in 4 rural and remote island communities of Santo Antão in Republic of Cabo Verde. A mix of analogous and digital technologies, their affordability and accessibility open up a new space for collaboration in the community, as well as between people, researchers and engineers, that is based on ethnography and participatory design techniques. We describe the process of community information platform co-creation and appropriation in the first stages of research and deployment of community radio stations that foster participation. Participation is an ongoing interaction involving decisions concerning technologies, the actors involved, the production of the content and the institutional framework [2, 5]. We argue that this is influenced by several unpredictable factors and challenges which we aim to describe. The contribution this paper makes is in highlighting challenges in the design and deployment of ICT in rural and remote island communities in Africa.

CCS CONCEPTS

• **Human-centered computing** → Collaborative and social computing; Empirical studies in collaborative and social computing.

KEYWORDS

Community information platform, Community media, Community radio, Participation, Republic of Cabo Verde

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1 INTRODUCTION

Radio is ubiquitous media among Cape Verdeans – people listen to it whether at home, at work, in the car, in urban or rural places. Community radios are among the most popular ones. Community radio sector in the Republic of Cabo Verde is relatively well developed and supported by the legislation. Currently nine of 15 licensed community radios between 2003 and 2015 are operating throughout this archipelago country. However, to set up the station is very costly and not easy to maintain in a sustainable way. Despite many differences in community radio stations globally, which vary from one cultural context to another, benefits of community radio for the communities are well known and documented [1, 10]: they have a potential to offer a space for community deliberation, dialogue, empowerment of local communities, and enhancing local context. They present the so-called “voice of the communities” in the environment where information is often provided by NGOs or government experts to people, rather than as exchange and dialogue between people. Favourable policy frame is very important and can contribute to participation of people in democratic processes, but it is not enough. African rural and community radios face several challenges, such as high costs of equipment and of space for the station, increasing dependency on donor funding for project sustainability, NGO-isation, inadequate training facilities, are urban-based commercial stations, or lack of community based and more participatory radios for citizens participation and involvement in content production [18]. They lack more participatory processes, grassroots support and mobilization, community support through volunteering etc.

New and digital media technologies can address some of those issues but can increase the digital divide. However, when they offer new ways to use old technologies, such as radio [9], they can make a significant contribution to the availability and accessibility of the media, and therefore allow for participation and inclusion.

In this paper, we review Alert4You, a project about civic media for island autonomy and resilience based in 4 communities of Santo Antão island in Republic of Cabo Verde, and a platform that aims to reinforce the efficiency of communications, creation and exploitation of information, and increase the capacity to disseminate information and alerts related to situations that may compromise the safety of the population, in a participative way. As such, it also makes part of the growing research in the field of designing interactive systems to mitigate disasters. The project focuses on bottom-up, inexpensive, and sustainable approaches to communication, discourse and decision making within communities. In the heart of the project is RootIO technology, a socio-technical innovation for

community information platform, a free/open software and hardware stack that combines analogous (radio as an old media) and digital technologies (a platform on the cloud that can be controlled on the website or on the phone). RootIO enables the creation of low cost community radio stations that do not need a physical studio and are running under community radio licences in Cabo Verde.

So far the project's efforts mainly focused on engagements of the local communities in four localities, getting the licences for broadcasting, and setting up the radio stations. We describe the process of radio co-creation in its initial phases and deployment of the stations made through anthropological and ethnographic engagements with the community members, field research, group discussions, co-design workshops, and trainings that identify the needs and interests of the community and initiate further participation of the community members in civic deliberation and radio creation; licence application and field deployments of the station aimed at introducing and testing RootIO, a community information platform. A public engagement initiative in small rural communities in Santo Antão island is necessarily a collaborative and interdisciplinary work between engineers, social scientists and communities. Our case study explores the challenges we faced, the solutions we found, what we learned, and recommendations we have.

2 LOW COST COMMUNITY INFORMATION PLATFORM FOR INFORMATION SHARING, CIVIC ENGAGEMENT, EMERGENCY SITUATIONS, AND FOSTERING PARTICIPATION

The way how technology is designed has a direct impact on how people will interact with it, and finally participate. Two important factors to consider are availability and accessibility, which RootIO is directly addressing through its design [8]. This innovative radio technology was initially co-designed with villages in Uganda, as a tool for advocating on local issues, through broadcasting using a basic mobile phone. A free/open software and hardware stack combines analogous and digital technologies: a low power FM radio station transmitter and antenna attached to a low cost extendable mast, an inexpensive smartphone and an app capable of mixing live and recorded content, and a cloud data and telephony server that is sending programming content to the smartphone, receiving and connecting live calls. The content can be programmed through the app or a web interface and allows for a variety of media content including podcasts, live streamings, live calls. New mobile and web technologies open up more possibilities for content production. Online platform and telephony interfaces enable managing content and scheduling, which makes it more a community information platform rather than a radio.

RootIO is a community information platform intended to support the creation of low budget and easy-to-use community radio stations in rural and isolated areas. It aims to reduce technical and social barriers to participating in community information sharing, decision-making and local media. It can also be seen as a sharing initiative, where managing information and communication resources is collectively owned and used. Since there is no need for a studio, people can use it from everywhere, going live with just a telephone call. RootIO shifts the way the content is created, transmitted and

shared via digital technology, while maintaining conventional FM radio for listening. RootIO stations offer more and better modes of interaction than traditional stations, require little investment and maintenance.

2.1 Participation and technological skills

Its Free/Open source software and commons oriented approach enable participatory practices in media content production [7]. Participation is an ongoing interaction involving decisions concerning technologies, the actors involved, the production of the content and the institutional framework [2, 5]. In this regard we will look at the interactions with the new technology, namely through the workshops and trainings, decisions about the people involved, institutional framework and licence application process, and our plans to study the use through the participation in content production. Contemporary ICTs, such as RootIO, that enhance accessibility and affordability, have potential for new ownership models, community connectivity, promotion of diversity, inclusion, new forms of collaboration and cooperation, community discourse and deliberation, and citizen engagement.

Cibin et al. [4], building on recent works on institutioning that bring to the fore the relation between design and institutions in order to achieve change in the public realm through practice, investigate how institutions and licencing process influence design of the community radio. In this regard we should look at the policy frames (policy documents, rules, laws and bylaws), institutional action frames (means and the structures of belief and perceptions specific to institutions that guide their action), metacultural frames (broader cultural narratives belonging to society which influence the nature of an institution [3]). We will be interested in how institutioning process influences the making of community radio and how actors involved work with the institutions.

Previous research underlined how innovation is not just the sum of processes of ideation, design, and development of an artefact, but also is the result of the way this artefact is distributed and adopted by people in their daily life [6]. Introduction of new technology into the society requires training and teaching of new skills. Active participation and decisions concerning technologies and content are possible only after acquiring new technological skills and knowledge. Guides and written manuals, demonstrations, hands-on trainings and learning by doing present some of this repertoire. We know for a long time that learning to use new technology is a skilled practice and skill "both practical knowledge and knowledgeable practice" [11, 13]. Skilled practice entails qualities of care, judgement and dexterity, and learners learn while they watch and feel as they work. We will take a look at how the process of teaching and learning new skills took place in Santo Antão.

2.2 'Work before the work' and technologies as 'unstable things'

We will introduce the main actors involved and their interactions, with a particular focus on the facilitators and their activity to connect a group of engineers, developers and researchers with members of different communities through translating intentions, values and experiences between the groups. In our case social action researchers and presidents of the associations of the communities

played a big role in that. Cibirin et al. [6] as well as others observed that intermediaries have a strong influence on the *construction of the social infrastructure* where the process of innovation is supposed to take place, as well as influence on the technology and its use. Skills, goals of the intermediaries, their position in the society and within the project, their power to build trusted relationships, have an influence on how technology is represented and translated in the communities, and consequently also accepted and used. Light and Akama [16], when contributing to the growing research in the field of designing interactive systems to mitigate disasters, shift their perspective from the design of new technology towards designing with people in communities, and argue that the act of engaging others and designing with groups of people involves an embodied knowing, with moment-by-moment shifts in position, focus and delivery. Facilitation has been defined as ‘the art of moving people through processes to agreed-upon objectives in a manner that encourages participation, ownership and creativity from all’ [20].

“Work before the work” [15] turned out to be of great importance in introducing social innovation to Santo Antão island. Le Dantec and Fox [15] reflected on the challenges of participatory design within geographical communities and described the importance of “the work that occurs before the work: developing relationships, demonstrating commitments, and overcoming personal and institutional barriers”. They show how negotiating “productive partnerships” to have access to the community contributes to the construction of the community itself, and that for technologies to be useful for communities they must align with community needs and goals.

Finally, technologies are “unstable things” [14]. Larkin [14] focuses on the moments when technologies are first introduced in order to foreground the material and epistemic instability of media. He distinguishes between the capacity of media technologies to carry messages (signal) and the technical interference and breakdown that clouds and even prevents that signal’s transmission (noise). Noise, the unintelligible signal, is a regular part of media flow. Noise is still communicative, however, as unintelligibility does carry in it a promise.

3 METHOD

We started a co-creation process in 4 communities in Santo Antão through anthropological and ethnographic engagements with community members and a participant observation based field research, using elements of EAR – ethnographic action research, a methodology that links research to community-based media or technology initiative [21] and non-media-centric media research [12, 19] which highlights specific setting in which media uses take place, and look at the multiple embeddedness of media in everyday life of people, to identify the needs, desires, visions, aspirations and interests of the communities and initiate further participation of the community members in civic deliberation and radio creation. We conducted a survey with a questionnaire in order to assess communities’ interests in receiving the project, community information needs assessment through semi-structured interviews, informal conversations with community members, meetings with local officials and representatives of local associations, focused-group discussions that initiated their ideas about radio programs, community radio

assembly meetings where radio committees were created, and held informal talks with government representatives (DGCS – Ministry for culture and creative industries, ARME - Agency for Multisectoral Regulation of the Economy, ARC - Regulatory Authority for Social Communication). In the further deployment process of radio stations and activities, such as setting up the station, workshops, recruiting the volunteers, demonstrations and trainings on how to use community information platform, authors were also participant observers. Objective of the workshops and trainings was to manage expectations of the participants, equip them with new understanding, fostering the feeling of ownership, participation and control over the community radio.

Besides, additional empirical material analysed consisted of project documentation - reports, documentations from the field, field notes, photographs, institutional policy documents, and institutional web pages, interviews with the team of involved local researchers and an engineer when travel was not possible due to the pandemic to conduct interviews with the locals themselves.

4 THE CASE STUDY: ALERT4YOU IN 4 COMMUNITIES IN SANTO ANTÃO

We will now look at 4 local communities that are communities of place, but at the same time emerging communities of practice around the radio system. We would like to stress the need to understand the term community in contextual, relational aspects and acknowledge diversity of communities itself.

Santo Antão island is the 3rd most populated island in Republic of Cabo Verde with a population of around 50.000 people, but our 4 chosen communities are of much smaller population, spanning from 300 to 1000 people. The access to this mountainous and rural island is only by ferry from Mindelo in the neighbouring island São Vicente. In contrast to other more arid parts of Cabo Verde, agriculture is well spread on the island and together with fishing present main activities.

4.1 Motivation and community engagement

People here are used to listening to the radio in their everyday life, but have limited access to media and information, either the signal is not clear or doesn’t cover all the community, so people need to displace themselves in order to search for information. In our community meetings people were complaining that they have to pay for RTC, the national program, but they don’t have a radio or television or a signal at home. Besides, they lack of local media and information. People know the advantages of community radio that some other places in the country host (there are two regional radios – radios regionais in Santo Antão: RCM [Rádio Comunitária para o Desenvolvimento da Mulher] in Paul and Radio Rural in Ribeira Grande), they desire it, and some associations already had an idea about their own community radio for a long time but they couldn’t afford the conventional community radio associated with high costs.

At one of the meetings with the community members, president of the association for the local development advocated for community radio, expressing:

Figure 1: Community meetings - focused group discussions in two communities aimed at engaging locals. Local researcher is presenting the project and people are discussing their ideas and visions.

“We have a lot of things here at this place. If we don’t know them, we’ll lose them. We must not forget the history and development of this place. Years from 1995-2005 were very difficult because of drought. Those were the years with months that we couldn’t afford to pay for basic necessities. But from 2006 our place became completely different. It became relevant in the national context and a place with potential. Training and organization are important. The main problem that we have is organisation. Community radio can help us with that. All people contribute to it voluntarily. It will allow us to resolve problems with the use of a simple mobile phone.”

And further:

“The communication is fundamental. Our biggest problem is communication. Journalists sell the news and want to be scandalistic. There are often comments below the news that can say anything but when you are with your own name, you are responsible for what you do and say. Radio will allow us to pass information, not only receive it.”

The quotes show the role of community associations and their presidents in engaging local community people towards participation in community radio. Associations’ presidents, together with municipality delegates, know the local environment and people very well, have the power and respect in the community, are able to organise a large crowd of people in a short time, are listened to and therefore became our gatekeepers to the community. People were engaged at their initiative, they were our first contact, calls were made with them, and they organized/ attracted other people to join the community radio.

These meetings served to define the themes and content to be emitted in stations in a participatory manner, as well as to collect data and socioeconomic and ethnographic information from each community. They find community radio as a useful tool for publicizing their work in the community, information sharing, meetings arrangements, awareness campaigns, trainings, for strengthening the community and feelings of belonging, to encourage people to work towards social and economic development goals. Agriculture is in the centre of lives of people in Santo Antão and is a desired topic for support through community radio. They see topics such as water management, bio-pesticides, support for local production,

food certificates, cooperatives of agro-food transformation and commercialization to address the market issue, new technologies in agricultural production, advice, use of medical plants, as appropriate to communicate through the radio. Sharing information for natural emergencies is also an important topic on the island where fires are a real threat and cause forest damage and endanger people. Other desired programs are news and sharing information, entertainment, health, culinary, sport, education for children, live stories, culture, language, music, promotion of sustainable tourism, gender issues . . .

One of the aspects that is important for consideration is language – people wish to hear more programs in their local Kriolu language, since much of their media in Cabo Verde is influenced by media and accent from Brazil. It was important considering the design of the platform in standard Portuguese language. Localized community radio also offers a possibility to connect dispersed island communities with natural and infrastructural barriers between them.

4.2 Licensing and installation

During the first months of the project, researchers and community associations collaborated and interacted with national institutions to get licences and frequencies for broadcasting. Licence application has been a long and timely process and required active involvement of community members – identified associations from its beginning. Those associations are community development local associations, one with the focus on women, another on the fishing activities of the inhabitants, united community of highlanders and community for local development and promotion of local production, promoting employment in agro-food processing. In all four cases, licences were requested by the associations. The radio committee of five people had to be established. This establishes that the benefited community is truly community-based and locally embedded. There has also been an interest by the governmental bodies and institutions expressed and efforts made from their side for the smoother application process, since they recognise the value and the opportunity of this technical support for the communities. Sustainability was highlighted. Specific regulations for community radio in Cabo Verde obliges them to follow many rules, including maximum 16-hours daily emission duration. Application documents also required detailed social and technical description and collaborations between engineers, researchers and community associations were very close

Figure 2: Mast and the antenna installation.

in preparing the application. While waiting for the licences, community engagement activities continued, technical components for the stations were assembled, and work on the RootIO platform performed.

Our plans to install the stations were interrupted by the covid-19 pandemic that prolonged the processes. Once the licences were approved by the government of Cabo Verde, the team travelled to Santo Antão, to install the stations, to conduct trainings, demos and deliver guides in four communities. The people in charge of maintenance of the station were told how to check the proper or wrong functioning of the station, detect and repair problems. Setting up Alto Mira station with the help of some members of the community, associations and inhabitants was described by engineer:

“We made the inspection of the place for the mast and antenna together with people. In one place we had to cut down the antenna that was rusted and out of use. Then we used the base for attaching our mast. It was already there, so we just took advantage of what was already there. President of the association contacted the guy to bring the tool and cut it for us. It was like that, I need this, ok, I know someone that can do that and they started to call and organize each other. They do that all the time. He also brought us lunch that day. Because we couldn’t just leave work unfinished. There was always someone that knew how to take care of the antennas because they know how to work with satellite antennas.”

4.3 Further training and skill sharing

During the period when the team was in the community to mount the antenna, install the transmitter, smartphone and the whole station, engineer and local researchers organised at the same time demos and trainings on the station running in the community – about the system use, platform use, content creation on the platform etc. with step-by-step instructions and images for how to use the program. Guides about use and legislation were delivered. Initially they were organised only for a small group of people that decided to actively participate in the radio content production, and those will further teach newcomers. Initially there were challenges in some communities to attract more women to participate. Even though villagers are very enthusiastic about the platform, some found it

difficult to take time from their everyday agricultural activities dictated by weather conditions, and to participate in the activities. However, around 5 people in each community were trained on how to manage the program and were accompanied to gain practice on the new system.

Teaching and learning process is described from the point of view of an engineer in the following two paragraphs:

“They don’t have a lot of access to technologies, like laptops and computers, things that we take for granted here. Just TV, essential channels, some internet on the phone to talk, send messages without spending money. They have little connection with technological stuff and it is difficult for someone who is not connected every single day to learn this. So it needed to be something really simple and direct. This was one of the challenges. We made a lot of changes for them to easily interact with the station. Most of the stuff they can manage by themselves because they’ve had support. For example, they want to do something, and they follow guides on how to do that. One or two people in every community did understand and they were interested and they would ask questions, but not everyone. It is difficult just seeing it for the first time. So there was a second time and sometimes also a third time. A lot comes through practice. You need to actually interact with the station.”

“People would come to my laptop, after explaining to them, we would try doing a program that they wanted to, and then they were helping each other, explaining how it is working. Generally it is not a good idea to bring a lot of people to the training. We could see that in Ribeira da Cruz. We had a lot of young people there, trying to see the website, understanding the website. It was more complicated for them to understand than just a few. It is like drawing the line between the people that were in the front and those in the back. And the difference between the young people and older people. They didn’t interact as much as other people that were trying to actually be responsible for the station. In each place we had 5, 6 people responsible for the station. Those responsible for the station were the most interested, they asked a lot of questions and

Figure 3: Demonstration of the RootIO platform and training in the time of the pandemic. The president of the association is video recording the training.

talked to us also after we were gone, sending us messages, asking how to realise some of the ideas they had. They were also explaining with us and showing to others how things are working. Because of covid we couldn't have a lot of people at the trainings. So we had few most interested people that would then explain to the rest. When you pick up individual people and give them examples for their work they were more interested in the platform. Now anyone can ask for the credentials to get in the platform account and create their own content."

4.4 Other socio-technical challenges

One of the serious issues that was successfully overcome and that influenced the platform look, was the language of the RootIO platform. Platform was initially available only in English language, therefore the team prepared simplified guides with translations in Portuguese in order for local people to be able to understand the language and use the platform. Some negotiations and collaborations with RootIO engineer provided the platform translation in Portuguese while the team was still in the field which changed the training performance and of course eased the process for local people learning and using it.

In one of the communities, electricity is supplied with solar panels and sometimes power can be unstable and unreliable. In other communities power outages are quite frequent. Therefore it was necessary to explicitly include in the instructions that in the case of prolonged power cuts, restart of the smartphone and hotspot is needed.

We further describe some other socio-technical challenges that we faced during this process. Although informal and in some aspects context-specific, our findings may provide valuable guidance for developers contemplating on implementing systems in similar settings and when considering distance between design/engineer/research center sites and deployment sites. Some socio-technical challenges therefore were: Because of the distance from the design and engineering site, work had to be very well planned and designed for as little mistakes and repair as possible, because further visits of the team to the field site will be limited. "It needed to be done right because I can't go back there if anything happens," said the engineer. Locals with interest in technology were also trained for the cases of repair of hardware. Engineer recounted:

"This is also our project, to get equipment which is easy for them to replace. So we did that. We had to manage with what we had. So also for the repair they'll have to manage with what they can find on the island or just nearby. So we checked out local stores there. Few things you can't predict and you need to improvise. Even equipment that we bought and tested in Madeira did not work as perfect there. There are few minor details that made a difference and we needed the equipment for that. But most of the stuff we managed to pre-planned and actually organized before going there. Which is important because you really don't have a lot to manage there. The stuff that we bought there is the basic stuff that we can find everywhere, like phone chargers, audio cables, the hammer, screwdrivers, the sim cards. 21 sim cards,

Figure 4: RootIO platform in Portuguese language for the station in Santo Antão, showing weekly schedule of the program.

Figure 5: People gather together to listen to the first transmission of the new community radio.

16 for the GoIP, 4 for the phones with data and one for the router.”

Scarce resources and islandness were two important factors to consider, and also influenced (re-)appropriations of resources and execution of the work: “We chose the Monte Trigo community as the last one to visit because we had to bring all the equipment with us by a small boat.”

We faced a technical problem of a damaged transmitter on the field that was transmitting at a very low volume (referencing noise and unintelligibility by Larkin), therefore a local social researcher was trained on the spot and supported from the distance for the

future replacement of the new transmitter. In one of the communities, people were so enthusiastic to use the radio system that they started broadcasting without the attributed radio frequency even though the regulatory framework was well explained to them. Someone from another regional radio found out and announced to the authorities. As a consequence, all radio transmitting activities had to be suspended until the frequency attribution. President of the association expressed it like this:

“Radio is being very good for our community, people are enjoying it very much and it is being very well accepted, we are very excited. Too bad that we had to suspend it for a while while we wait for the frequency.”

4.5 Future work – Further steps of the project

Regarding the current developments, we envision that frequencies will be attributed to the communities in a short time and people will be finally able to legally use the system. We plan to study those use dynamics of the RootIO platform and radio creation where participation in content production, radio community building and impacts can be analysed. Processes of appropriation through use will be considered in order to evaluate the platform and further foster its co-design through use. Special attention is being paid towards the transition of the community radio into the hands of communities, so that the ownership and management will be fully in hands of the communities. We wish for the radio stations to be self-sustainable and independent. We therefore offer initial support in this transition and stations could further apply for government subventions (The Cape Verdean government announced in August 2019 that it will start subsidizing annually the associations, owners of community radios, through the state incentives package. According to the government, they will finance projects of associations that own community radio stations.) and use regulated advertising as a source of their income to cover costs of license renewal, operating costs, maintenance, and anything else. Sustainability requires the establishment of resources and process for ongoing evaluation, adaptation, and repair to ensure the system remains operational even once the project finishes. We therefore trained local technicians in maintenance and repair of the hardware.

Moreover, further research will look deeper in each community and through comparative analysis acknowledge differences and similarities of the community platforms running in different places on the same island, for which here was not enough space. We also hope to give more voice to the communities' people's own account of the experience, what was limited in the times of pandemic.

5 DISCUSSION

At the beginning of this paper we argued that participation in community radio is an ongoing interaction involving decisions concerning technologies (guides and training), the actors involved (facilitators, associations and their presidents, local people), the production of the content (trainings and future work) and the institutional framework (licence application and institutioning) [2, 5]. We mentioned technological skills that are critical for managing new digital platforms. Introducing innovative radio technology requires teaching of platform use, content and audio production. Moreover, it requires teaching about hardware maintenance and repair. Technological skills are important for participation and informed decisions around an innovative community information platform, so we described the transfer of technological knowledge. Motivation for participation and enthusiasm are equally important but can be threatened through disruptions in the process, breakdown of technologies, waiting time in institutional and bureaucratic processes when applying for licences and frequencies. Therefore a smooth institutional process is important for participation and motivation. Inclusion and participation throughout give the feeling of appropriation and ownership.

For a community's active engagement, it is necessary that control, ownership, organisation and decision making about new local media are in the hands of the local communities. Importantly, new

radio technology also further enables and fosters community participation and collaboration in creating community radio programs. Our research in all four communities in Cabo Verde showed that the aspirations for using a novel technology is not a desire to change existing social practices of the community, but rather enhance and support them.

Participation was not so much about decisions concerning technologies since technological elements of the hardware and software were quite defined beforehand, but decisions concerning the chosen installation setting, the actors involved, collaboration with institutions to assure licences, and the production of the content are contributions of the community people. Network building or "work before the work" also required time. Establishing relations, communication and collaboration between different stakeholders turned out to be as important as learning technological skills or running the radio. For proper participation, knowing laws, behaving according to laws and regulations when using radio technology is also important. The process, although long, provided time for the networking, preparations, learning and understanding. Constant contacts with the people in the associations and communities, field visits, face-to-face presence activities such as workshops, training and other meetings, as well as decisions feedback from the governmental bodies, granting licences and frequencies, helped to keep enthusiasm high. However, engagement is not easy to retain until the system is perfectly functioning and enables full participation.

We show that in order to foster technologies that can be used in different settings without losing their socio-cultural embeddedness, it is important to foster appropriation through practices of meshing [17]. This does not require only the co-design of technology and the platform itself, but also co-creation of the community of practice and nurturing relations through ethnographic engagements, also relations with the regulatory institutions.

Long-term collaborations also include collaborations with institutions and government bodies responsible for the legal context of community radio in the country and licence attribution, as well as with regional and local leaders. Sometimes local leaders and authorities can be more effective in transmitting the information and introducing new radio technology and tools, building trust and organising community around the community radio. At the same time we need to be aware of the abuse of their political power and make sure that inclusion and diversity are enabled.

The project also created a special dynamic between the communities and associations from different places, sparking information and experience sharing. Since we worked in four settings, the order of visiting, taking new experiences and knowledge from one place to another, and the happenstance of events like unpacking a functioning or defective transmitter in a given place, also influenced the community and managed expectations and enthusiasm.

We would also like to mention how a pandemic can make work less participative, less close. Even though finally the barriers to travel to the communities were lifted at a certain point, training and demonstrations were held with distances enforced, covered mouths and expressions, with less touches and "hands-on" training and experimenting. Face to face and tactile training is fundamental in order to understand intentions and goals in the collaboration process.

6 CONCLUSION

We presented a description of the unfolding of a community media development project Alert4You and described the process of fostering a local community information platform that supports the creation of community radio stations in four places in Santo Antão. We reflected on challenges and difficulties that we faced in Cabo Verde and how we overcame them. We recognize that this work is still in the process of development at an early stage and the actual use of the system by local people and communities could give us more valuable insights into system functioning and validity of this innovative communication platform for the creation of community radios in isolated rural areas. However, we recognize project had a meaningful impact on the communities because it gave them tools for their self-organisation. Though it is not finished and realised yet in its full extent, it has had a positive impact on the new dynamics of cooperation in communities. The possibility to create and participate in one's community's own radio was viewed as very valuable by community members.

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REFERENCES

- [1] Lucas Bessire and Daniel Fisher. 2012. *Radio Fields: Anthropology and Wireless Sound in the 21st Century*. New York and London: New York University Press.
- [2] Nico Carpentier. 2012. The concept of participation. If they have access and interact, do they really participate? *Revista Fronteiras – estudos midiáticos* 14, 2, 164–177. <https://doi.org/10.4013/fem.2012.142.10>
- [3] Pål Castell. 2016. Institutional framing of citizen initiatives: a challenge for advancing public participation in Sweden. *International Planning Studies* 21, 4, 305–316. <https://doi.org/10.1080/13563475.2015.1124756>
- [4] Roberto Cibin, Maurizio Teli and Sarah Robinson. 2019. Institutioning and Community Radio. A comparative perspective. In *Proceedings of the 9th International Conference on Communities and Technologies (C&T 2019)*. 11 pages. <https://doi.org/10.1145/3328320.3328392>
- [5] Roberto Cibin, Sarah Robinson, Kristen M. Scott, Duarte Sousa, Petra Žišt, Laura Maye, Mariacristina Sciannamblo, Simone Ashby, Christopher Csikszentmihályi, Nadia Pantidi, Maurizio Teli. 2020. Co-designing convivial tools to support participation in community radio. *Radio Journal: International Studies in Broadcast & Audio Media* 18, 1, 43–61. https://doi.org/10.1386/rjao_00015_1
- [6] Roberto Cibin, Sarah Robinson, Maurizio Teli, Conor Linehan, Laura Maye and Christopher Csikszentmihályi. 2020. Shaping social innovation in local communities: The contribution of intermediaries. In *Proceedings of the 11th Nordic Conference on Human-Computer Interaction: Shaping Experiences, Shaping Society (NordiCHI '20)*, October 25–29, 2020, Tallinn, Estonia. ACM, New York, NY, USA, 12 pages. <https://doi.org/10.1145/3419249.3420178>
- [7] Correia, Rute, Jorge Vieira and Manuela Aparicio. 2019. Community radio stations sustainability model: An Open-Source solution. *Radio Journal: International Studies in Broadcast & Audio Media* 17, 1, 29–45. https://doi.org/10.1386/rjao.17.1.29_1
- [8] Chris Csikszentmihályi and Jude Mukundane. 2016. RootIO: ICT + telephony for grassroots radio. In *2016 IST-Africa Week Conference*. 1–13.
- [9] Rosemary Day. 2011. New Technologies and the Facilitation of Participation in Community Radio. In Gazi, A., Jedrejowski, S. & Starkey, G. (eds), *Radio Content in the Digital Age*. Bristol: Intellect.
- [10] Christina Dunbar-Hester. 2014. *Low Power to the People*. The MIT Press.
- [11] Penelope Harvey. 1997. Introduction: Technology as Skilled Practice: Approaches from Anthropology, History and Psychology. *Social Analysis: The International Journal of Social and Cultural Practice*, 41, 1, 3–14.
- [12] Jo Helle-Valle and Ardis Storm-Mathisen. 2020. *Media Practices and Changing African Socialities: Non-media-centric Perspectives*. Oxford, New York: Berghahn Books.
- [13] Tim Ingold. 2001. Beyond art and technology: the anthropology of skill. In M. B. Schiffer (Ed.), *Anthropological perspectives on technology* (pp. 17–31).
- [14] Brian Larkin. 2008. *Signal and Noise: Media, Infrastructure, and Urban Culture in Nigeria*. Duke University Press. Durham and London, UK.
- [15] Christopher A. Le Dantec and Sarah Fox. 2015. Strangers at the Gate: Gaining Access, Building Rapport, and Co-Constructing Community-Based Research. In *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing (CSCW '15)*, 1348–1358. <https://doi.org/10.1145/2675133.2675147>
- [16] Ann Light and Yoko Akama. 2012. The human touch: participatory practice and the role of facilitation in designing with communities. In *Proceedings of the 12th Participatory Design Conference on Research Papers – Volume 1 (August 2012)*, 61–70. <https://doi.org/10.1145/2347635.2347645>
- [17] Ann Light and Clodagh Miskelly. 2019. Platforms, scales and networks: Meshing a local sustainable sharing economy. *Computer Supported Cooperative Work (June 2019)*, 28, 591e626. <https://doi.org/10.1007/s10606-019-09352-1>
- [18] Linje Manyozo. 2009. Mobilizing rural and community radio in Africa. *Ecquid Novi: African Journalism Studies* 30, 1, 1–23. <http://dx.doi.org/10.1080/02560054.2009.9653389>
- [19] David Morley. 2009. For a Materialist, Non-Media-centric Media Studies. *Television & New Media* 10, 1, 114–116.
- [20] Sibbet, David. 2002. *Principles of facilitation: The purpose and potential of leading group process*. Grove Consultations International. San Francisco, USA.
- [21] Jo Tacchi, Don Slater and Greg Hearn. 2003. *Ethnographic Action Research Handbook*. UNESCO. New Delhi, India.