Radios in the post-pandemic world — Tools and strategies to confront the new normal

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Radios in the post-pandemic world

Confronting the new normal: a manual of tools and strategies for community radios

Authors

Inés Binder

Social communicator. Her research focuses on feminism, technology and communication policy. She is a co-founder of the Centro de Producciones Radiofónicas (CPR) and member of the feminist hacking collective la_bekka. She has written "Como sea: sostenibilidad económico-administrativa en radios comunitarias de Argentina" and "Politizar la tecnología".

Santiago García Gago

Social communicator. He researches techno-political and community media-related questions. He is member of RadiosLibres.net, Radialistas.net and the Red de Radios Comunitarias y Software Libre network. He has written "Manual para Radialistas Analfatécnicos" and "Politizar la tecnología".

Foreword

2020 has been a year of enormous challenges, and the COVID-19 pandemic has changed our lives in many ways. We have had to adjust and adapt the way we communicate with one another, the way we work or study, as well as other aspects of our lives. In many countries, restrictions have resulted in the greatest economic crisis of the century. At the time of this publication the long-term consequences are not yet clear. However, it is already evident that this global crisis has generated new fears and left society vulnerable to disputes and misinformation.

In response, the media, and especially local media, have played an important role, keeping their audiences updated on the pandemic, the decisions made by authorities and the condition of healthcare facilities.

Despite their importance for their communities, however, many local media outlets have limited resources and as a result have had to shut down or cancel programming. During the pandemic's most intense phases, for example, Radio Sayaxché — a Mayan community radio station in Guatemala — was only able to play music. And like Radio Sayaxché, thousands of other community radio stations throughout the world have been unable to inform local populations. With disinformation spreading exponentially through social networks, the technological gap has once again favoured large communication companies that have little interest in providing local communities with relevant information.

DW Akademie supports freedom of expression and access to information for the most disadvantaged groups. We believe that sustainable, independent, and technologically independent local media outlets make a decisive contribution to promoting participation, democracy and social justice.

"Radios in the Post Pandemic World" is the first publication in DW Akademie's new series "The Power of the Voice: Community Media in Latin America". It reflects how our work around the world contributes to democratizing information ecosystems and fosters critical and informed societies. This series presents the knowledge and experience we have gained to date, and is aimed at local media and the international, professional community.
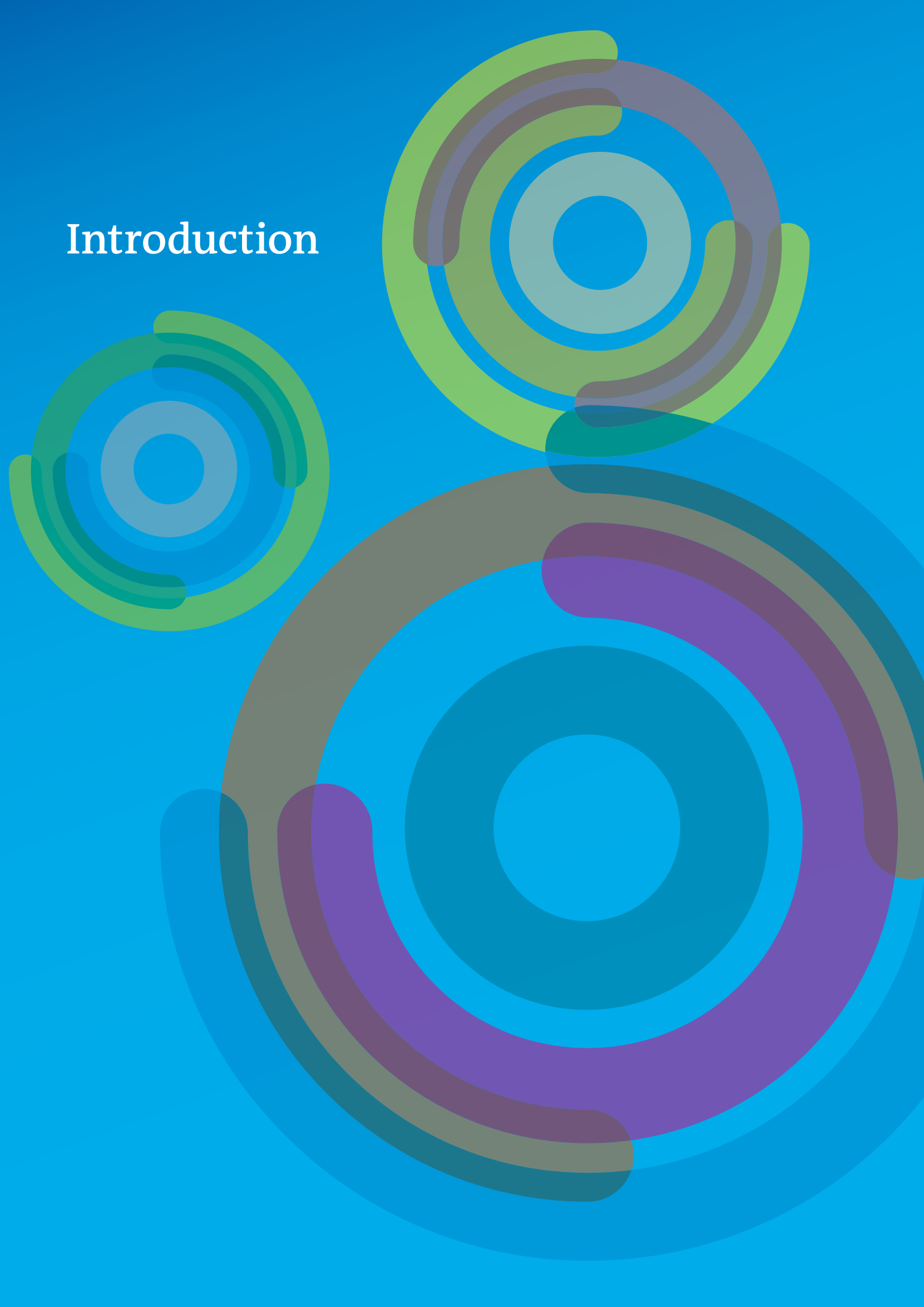
Rodrigo Villarzú
Head DW Akademie Latin America

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Introduction

Towards the end of 2019, it was hard to foresee that within a few months, the lives of nearly the entire global population would change from one day to the next. In a matter of weeks, the outbreak of a virus turned into a pandemic, forcing nations and international organizations to adopt exceptional measures to physically isolate populations and shut down productive economic activities.

The effects were ubiquitous. Demands on healthcare, obviously, quickly pushed staff to their limit. The workforce came to a halt, forcing businesses to seek new ways of working. Essential workers in sectors such as food production found themselves facing new safety protocols. Some sectors decentralized their offices, pushing people to telecommute, others directly suspended activities and thereby left millions of people out of work.

What comes after the emergency? What lessons remain after the crisis? The answers are still unknown, but the outlook seems bleak: economic recession, fiscal deficits, and rescue packages in exchange for economic reforms.[1] However, what does seem to be clear is that in our "new normal," digital information and communication technologies will take center stage.

Lockdown measures during the pandemic have accelerated the process towards the technologization of human communication. Admittedly, these technologies have made the long and monotonous days of confinement more bearable, making life easier and allowing families to stay in touch, as well as providing distraction and opportunities to study or work. Everyone in society integrated digital technologies into their everyday lives: video chat platforms, audio and video streaming, online shopping, and websites to manage projects and work cooperatively. Demand for such services has increased to an extent that, against the backdrop of a looming global recession, businesses in the technology sector were among the few to increase revenue. During the pandemic, without a doubt, the telecommunications sector has been one of the major players, even though the effects were not always positive.

In "The New normal," radios face new challenges that they haven't encountered before. Radios will need to expand their use of internet. Social distancing rules have forced them to take advantage of digital tools and technologies, collaboratively produce programs in decentralized studios from home, broadcast programs from multiple locations and increase audience participation. However, by intensifying the use of these technologies, the risks for radios have also increased and led to a greater need to discuss these concerns. Increasing use of the Zoom video call app, for example, revealed gaps in security that left users exposed. Apple and Google's joint move to install an app that tracks people infected with Covid-19 on devices running iOS and Android brought to light the extreme concentration of the mobile operating systems market and the need to protect the population's personal data. The spread of fake news during the pandemic exposed citizens to the problems of an information disorder and its impact on democracy.

What will the role of community media be in the "new normal"? How will they communicate in a world that, in some regards, will no longer be the same world which they knew; a world where inequalities will have deepened? The choice of digital tools will condition how radios communicate, and this, necessarily, will lead to an in-depth debate about the power of community communication to improve people's living conditions. As a proposal, "Radios in the post-pandemic world. Confronting the new normal: a manual of tools and strategies for community radios" seeks to give impetus to initiatives of community communication in this uncertain, post-pandemic environment. In the first section, a set of tools for content production, recording and transmission is introduced. Beyond simply providing a list of software already used by radios—such as audio editing and broadcast automation software—this manual's aim is to develop a comprehensive proposal for decentralized and collaborative forms of working. Nearly all of the software presented here is free software, because only free software guarantees radios' autonomy, privacy and security, and allows them to freely adapt it to the needs of specific contexts. Moreover, while (financially) supporting developers is recommended, most of the software programs presented here are available for free.

In the manual's second part, we then go on to discuss ten strategies that radios can use in their communication practices to guarantee freedom of opinion and access to information and that should allow them to establish a relevant position in the post-pandemic media panorama. These strategies were identified and systematized based on experiences that have already been creatively making inroads into radio communication, allowing us to tackle numerous challenges related to the dissemination of information. The lessons learned are invaluable and we aim to build upon them.

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[1] Deutsche Welle (June 10, 2020). According to the OECD, the global economy is amidst its worst recession since the 1930s. Deutsche Welle. https://p.dw.com/p/3dZ1o.

Tools

From the very outset, the transformative power of communication has inspired community radios: they have supported demands to improve working conditions for miners in Bolivia, taught peasant farmers across Latin America to read and write, and nurtured the debates avoided by global mainstream media. Over time, as societies gained rights, the challenges of social transformation that underpin the work of community media have shifted and become more complex. The one thing that has remained strong over time has been the unwavering conviction in defense of the right to communicate as a basis to safeguard all further human rights.

During the Covid-19 crisis more than half of the global population was subject to some form of lockdown, which spurred the use of digital platforms and tools. Feeling an urge to see each other and communicate, people embraced video calls. Governments made policy decisions through screens. The media decentralized content production and began to virtually broadcast programs from homes. Universities and schools hastily began to implement e-learning. Businesses installed cloud services that allowed them to keep up production.

The tools in this first part of our manual were not selected soley to provide practical solutions to the current health crisis and lockdown, but they were also designed to meet the needs and probable demands of the subsequent "new normal." Even though no one as yet can say what the "new normal" will be like, it will surely imply changes to life in the public sphere. In terms of the work environment, we will likely see a further decentralization of tasks and an even greater reliance on digital technologies, and a will to implement ways of working from home that do not depend on physical spaces to meet and share experiences.

Community media will have to move in a similar direction. Journalists, producers, directors, sound artists and engineers will have to learn to produce radio in a decentralized manner, without losing the richness of personal meetings, feedback, and audience participation.

This section systematizes the tools that are currently available to create virtual and cooperative offices for content production, equip decentralized radio studios and develop online broadcasting. From a community and human rights perspective, knowledge of these tools, and adopting them in practice is the added value that community radios can contribute towards solving the challenges that the media sector and society as a whole face today.

1. Free platforms

With a few exceptions, the tools presented here are free. Their source code, which is what makes them work, is open, and their distribution, modification and the dissemination of these modifications is encouraged. Adopting such software, which is known as *free software*, is of fundamental importance for any collective form of knowledge construction and privacy protection.

However, free does not necessarily mean cost-free. While the majority of these software are indeed available for free, many free software development projects are sustained by donations. Some tools, in spite of being for free, are hosted on serv-ers that require electric energy, and maintenance and support services. Recognizing this fact and in some form repaying them for the work involved in developing these free tools is therefore a good practice. Either, of course, through money or by way of active contributions: translating, reporting bugs, disseminating the tool or providing support to users.

Many organizations believe in the inherent value of free software and therefore offer collectives, organizations, community media, cooperatives, and human rights activists the digital tools they need. Here is a list of the services each of these organizations offers:

	E-mail	Mailing lists	Website	Cloud	Streaming	Video	Mumble	Calc	Pad	Upload	Chat
Disroot	✕			✕		✕	✕	✕	✕	✕	✕
Framasoft			✕			✕		✕	✕	✕	
Riseup	✕	✕							✕	✕	✕
Autistici	✕	✕	✕								✕
Yanapak				✕	✕			✕	✕		
Espora			✕		✕		✕				
Systemli	✕	✕	✕	✕		✕	✕	✕	✕		✕
Komun				✕		✕	✕		✕		
Libre OPS		✕					✕		✕		✕
Mayfirst						✕	✕				
Greenhost						✕					
Giss TV					✕						
Astian				✕							
Resist.ca		✕									

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2. Virtual and cooperative radio studios

As most of life takes place in the kitchen, it is one of the most important spaces in a home. For radios, radio studios fulfill a similar function: it is here where we *cook up* our radio programs. What will moving the informal channels of information sharing, file organization and team meeting places to the online sphere involve?

First, we need to accept that the dynamics of work will not be the same. It is unrealistic to pretend that nothing will change. The challenge is to generate collaborative environments where everybody on the team feels at ease and can develop workflows that boost creativity and productivity. At first, we may feel disoriented; sense that information has become dispersed, that "there is no longer a space". And this is true, because instead of one space, there will be many. Luckily, there is a solution to the sense of dizziness caused by decentralization.

2.1. The Nextcloud teleworking suite

Developer	Nextcloud
Licence	AGPLv3+
Website	nextcloud.com
Operating systems	GNU/Linux, Windows, macOS, Android, iOS
Price	For free
Languages	English, Spanish, others

Nextcloud is a comprehensive suite for collaboration. Although its key function is the synchronization of files between devices — much like its proprietary sisters Dropbox or Google Drive — apps that expanded their functions and were developed over the years: contacts, video calls, a calendar, boards to manage projects, maps, cookbooks, music, etc. A complete list of these apps is available at: **apps.nextcloud.com**.

To synchronize files, Nextcloud copies selected folders onto a server. This requires installing Nextcloud on both a server (instance) and your device (client). If your radio wants to have its own Nextcloud, you will need to contract a server and install the software, or, otherwise, use free Nextcloud instances. Organizations currently offering accounts include:

– Yanapak: **nube.yanapak.org**
– Astian: **cloud.astian.org/index.php/login**
– Disroot: **disroot.org/es/services/nextcloud**
– Komun: **nubo.komun.org/login** (annual subscription)

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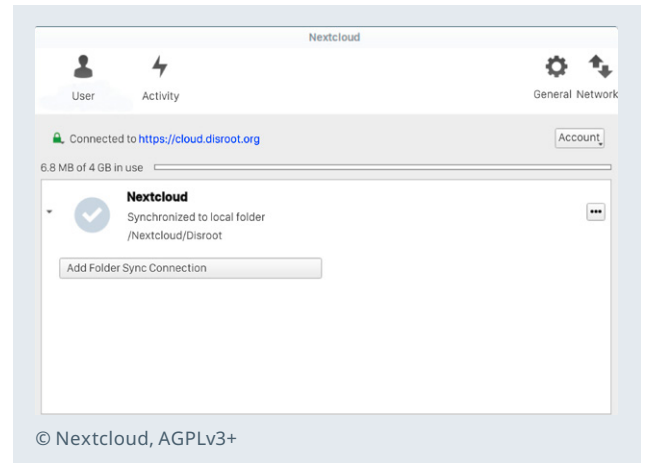
All of the people you want to share files with will require an account on the same Nextcloud instance. However, if necessary you can also generate links and publicly share files. Then they will need to install the Nextcloud client from **nextcloud.com/install**, configure their account (user name and server) and indicate the folders they would like to synchronize.

Synchronizing them in the indicated folder will not grant other people access to the files contained in a specific folder, to do this you will need to share the files. Right-click on the file or folder that you want to share, then select "Share" from the Nextcloud menu.

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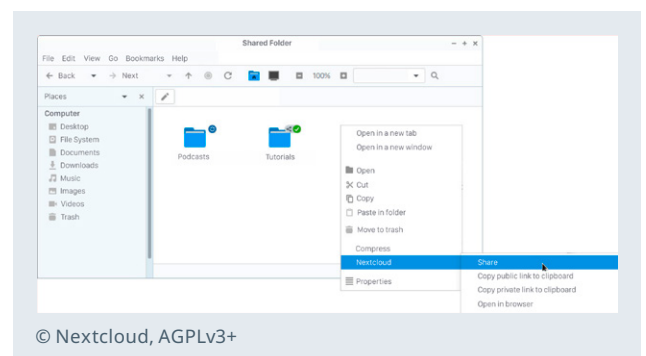
A small icon above the right-hand corner of folders and files shows the synchronization status: synchronizing (blue arrows), synchronized (green check-mark) and shared (network symbol).

Alternatively, and without having to install a software client on your computer, you can access and manage your files through the Nextcloud mobile apps (Android and iOS) or via the web platform, which also offers further services and applications.

© Nextcloud, AGPLv3+
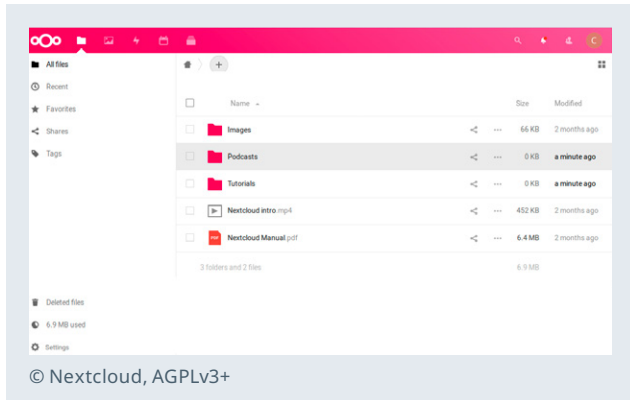
Clicking on the three dots to the left of each file opens the file options. The Details menu, allows you to share the files publicly via a link for people who do not have an account on your Nextcloud instance. You can also do this by clicking on the share icon.

Centrally storing documents ensures that the entire team of your radio has access to reference documents, scripts, snippets, music, pictures, etc. These "virtual offices" help organize work and provide stability to the team.

Nextcloud Calendar

Developer	Georg Ehrke, Tcitworld, jancborchardt, Nextcloud y más.
Licence	AGPLv3
Website	apps.nextcloud.com/apps/calendar
Platform	Web
Price	For free
Languages	English, Spanish, others

A shared calendar is a must-have tool for radio production. It allows the team to establish deadlines, schedule interviews and programs, keep important events in mind, etc. They can also be used, for example, to show radio programming in a simple and dynamic manner.

The Nextcloud calendar uses the CalDAV standard and allows you to schedule events from a client. In other words, radio team members can continue using their favorite calendar app (Thunderbird with Lightning, Gnome Calendar, Google Calendar, Outlook, etc.) and simply import Nextcloud's shared calendar. Every time someone adds an event from a computer or phone, those who share that calendar will see it.

© Nextcloud, AGPLv3+
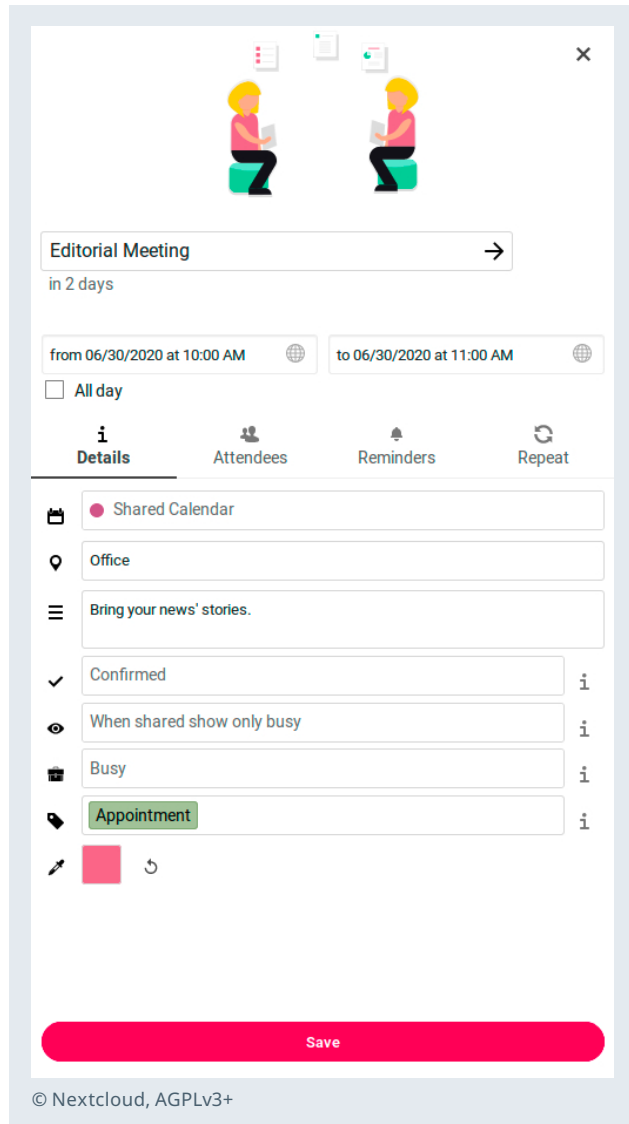
Nextcloud Calendar simplifies the automatic management of events. When you schedule an activity, you can establish a set of parameters such as name, date, duration, location, description, attendees and reminders. You can also define whether this will be a repeated event or if attendees will be added from the group of people that share the calendar. These people will then receive an email notification asking them to confirm their attendance.

Nextcloud Deck

Developer	Julius Härtl
Licence	AGPLv3
Website	apps.nextcloud.com/apps/deck
Platform	Web
Price	For free
Languages	English, Spanish, others

Nextcloud Deck is a card system inspired by the Japanese **Kanban** system to follow-up tasks. This tool can be used via the browser or its application for Android phone and makes it easy to see the stage a certain task is at. You create one card per task and these are then organized into stacks or lists depending on the categories agreed upon by the team.

© Nextcloud, AGPLv3+
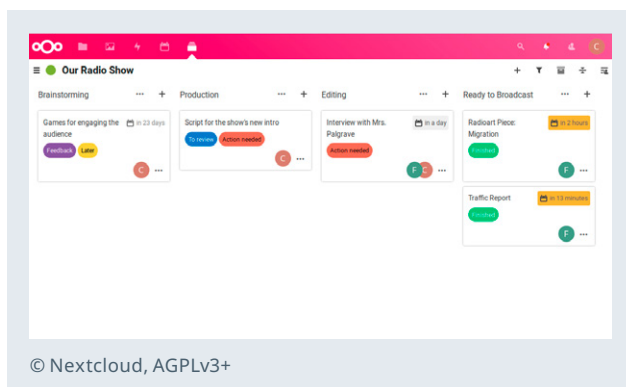
For each task, you can adjust a number of parameters: who is in charge, due dates, a general description and assign tags. You can also add comments. Unfortunately, Deck hasn't been integrated with the calendar yet.

A radio can use this tool to establish clear workflows, document and make available at the end of a year a precise record of everything that was done. Did the producer do the interview? Does the editor know she has to make the audio? With this tool, all members of a team see the tasks that have been assigned to them and can let the other team members know how far they have gotten.

Just like Calendar, Deck boards and other plug-ins that you can add to Nextcloud appear in the website's main menu. Nextcloud gives you all the tools you need for decentralized, collaborative forms of work.

2.2 Cryptpad: encrypted shared documents

Developer	XWiki SAS
Licence	AGPL3
Website	cryptpad.fr
Platform	Web
Price	For free, plus subscription options. Donation campaign.
Languages	English, Spanish, others

If your radio works with sensitive information—for example a report on attacks committed against human rights activists and you do not want the information to be leaked before you publish—it is important to use secure tools when you are collecting information. One option is Cryptpad, a platform that uses end-to-end encryption—only end users can actually read the information. The software offers a series of features that radios can use to work safely online.

Being free software, radio teams can see the code and install it on their servers. Free and cost free instances are also available:

– Cryptpad: **cryptpad.fr/**
– Disroot: **cryptpad.disroot.org**

On Cryptpad you can either work anonymously or as a registered user. As a means of supporting the project, Cryptpad.fr offers a premium subscription of between 5 and 15 dollars per month. We recommend using this tool as a registered user, because this will grant you access to the full range of applications, allow you to save and share files and take advantage of 50 MB of storage space, which might not sound much, but is definitely more than enough for dozens of documents.

To create an account press "Sign up" in the upper right corner. A window will pop up prompting you to enter a user name, password, confirm your password and accept the terms of service:

© Cryptpad, AGPLv3

You can also select to import pads you have been using anonymously recently. How does that work, if they are supposed to be anonymous? This is done through your IP-address, to which the Cryptpad system administrators do have access. As stated when you register, your password is required to decipher your documents. If you lose it, there is no way of getting your information back. A message will confirm you have registered when you finish and that your password has been securely saved.[2]

Even though Cryptpad is quite intuitive, it's good to take a couple of minutes to get used to the interface the first time you enter the platform. The main window shows all of the files saved on your Cryptdrive account. A menu in the upper right-hand corner contains two elements: The button on the right shows your username. Access the menu of your account here: start, registered users, change name, profile, settings (also to change password and language settings) and log out. To the left of this button is the bell icon, which will show notifications.

© Cryptpad, AGPLv3
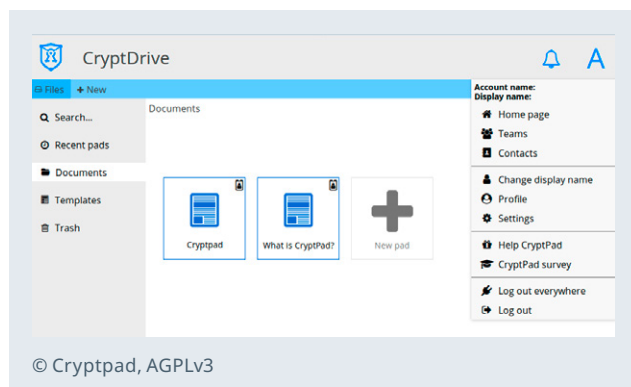
To open new files click "+ New" on the left side of the blue menu bar. A window indicating the document options, to create new folders or upload files will open.

[2] To save your password, it is best to use a password manager like KeePassXC. It is cross platform and you can download it at https://keepassxc.org/.

© Cryptpad, AGPLv3
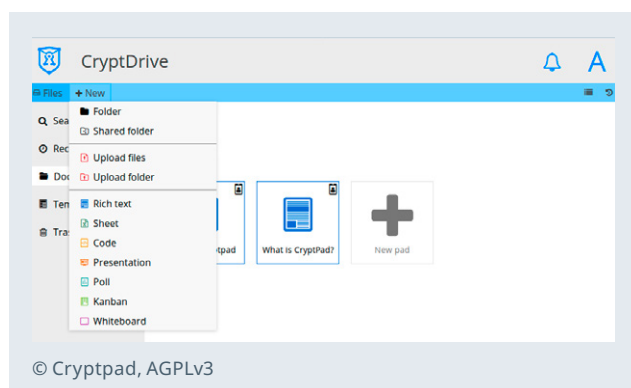
So, for example, when you create a new pad — we describe pad software in more detail below — a dialogue box will open where you can choose between a pad linked to your account (owned pad), an expiring pad or a password protected pad.

© Cryptpad, AGPLv3
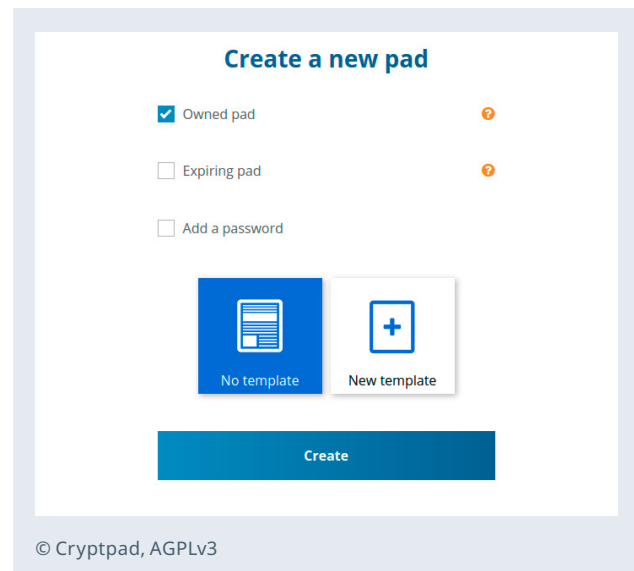
To jointly edit a document click on "Share" in the upper left-hand corner under the title. A dialogue window opens from which you can select to share the document with your contacts, adjust the parameters to share the link (see the picture) or obtain a code to embed the document on your website.

© Cryptpad, AGPLv3
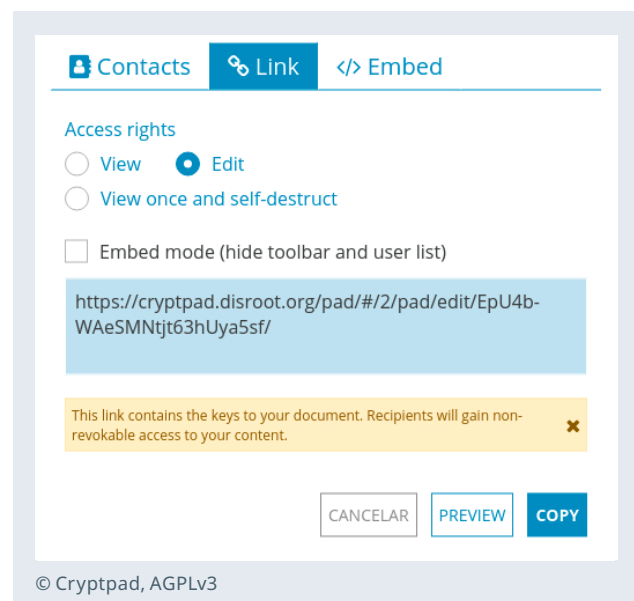
Cryptpad is a complete teleworking suite. While it does not offer the breadth of applications that Nextcloud offers, it has end-to-end encryption and is focused on secure communication.

Protecting digital privacy and security

Digital exchanges always create two types of data: the content of communication itself and metadata. Metadata contains the parameters describing the exchange — duration, time, place sent and received, size of the information transmitted, formats, the sender and recipient details, etc. Although this data may seem harmless, when put into context, it can become information about citizens and their lives. Frequently, people provide this data voluntarily, in other cases, however, they are not even aware that their actions create metadata that is being saved.

Shock situations, like the current pandemic, are ideal contexts to step up surveillance policies and large-scale personal data collection. Just consider the extent to which the Patriot Act violated rights following the 9/11 attacks on the Twin Towers in 2001.[3] Controlling Covid-19, as daunting a challenge as this may have been, and transitioning to the "new normal", must not be done at any cost. Without doubt, mitigating the effects of the crisis will require imposing certain restrictions, but such steps cannot imply violating fundamental rights.[3]

Article 12 of The Universal Declaration of Human Rights guarantees privacy, highlighting that "no one shall be subjected to arbitrary interference with his privacy, family, home or correspondence". Moreover, since 2015, the UN made a Special Rapporteur available about the right to privacy and it is mandated "to make recommendations to ensure its promotion and protection, including in connection with the challenges arising from new technologies".[4]

What could this mean for human rights activists, journalists, judges or politicians if their location is constantly tracked, their telephone contacts accessed, and their meetings logged? The scandal over the Colombian army's involvement in illegal wiretapping[5] or the surveillance of journalists and scholars by Argentina's Federal Intelligence Agency (AFI)[6], are indicative both of the scope and, also, of how widespread surveillance has become. How free is a person, whose data is stored upon entering the education system using applications such as Google Classroom? What are the dangers for a gay person living in a country that still stigmatizes homosexuality, when the places he or she has gone become public, which occurred in Seoul following a surge in the number of COVID-19 cases?[7]

The key lies in establishing clear regulations that limit and control data collection. Regulations such as Europe's GDPR8 are good examples. The less data and metadata that digital tools and platforms generate, the greater the level of control is over the data stored on each person. Herein lies the importance of not criminalizing encrypted communication, furthering the development and use of software that respects privacy, and choosing services hosted on trustworthy servers and located in countries that protect user rights.

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[3] Pöhle, S. (September 10, 2013) La herencia de política de seguridad del 11-9. Deutsche Welle. https://p.dw.com/p/19faS.

[4] OHCR (2016). Special Rapporteur on the right to privacy. https://bit.ly/acnudhEN.

[5] Semana (January 13, 2020). Chizadas sin cuartel. https://bit.ly/chizadas.

[6] Ayerdi, R. (June 6, 2020). Académicos, empresarios y la izquierda vigilados a través de datos y bienes personales.Perfil (in Spanish). https://bit.ly/VigilanciaAFI.

[7] La Vanguardia (May 11, 2020). Corea choca con el estigma de la homosexualidad en plena lucha contra el coronavirus (in Spanish). https://bit.ly/seultrack.

[8] General Data Protection Regulation GDPR. (EU) 2016/679. https://bit.ly/GDPReuropeo.

© Técnicas Rudas

The Técnicas Rudas collective

Técnicas Rudas is a Mexican organization that helps social collectives develop strategic projects and research, and adopt free technologies that respect privacy. Their approach focuses on digital security from a techno-political and feminist perspective that brings the political and economic dimensions of information and communications technology (ICT) to the table.

Based on this work, Tecnicas Rudas has published two important manuals to help organizations bolster digital security. Their guide to digital applications and services *(Guía general para evaluar aplicaciones y servicios digitales)* provides a checklist of points to consider when choosing an application: commitment to privacy, transparency, usability, and development model. The second manual *(Diagnósticos en seguridad digital para organizaciones defensoras de derechos humanos y del territorio: un manual para facilitadores)* offers a detailed methodology to orient the participatory diagnostics of holistic security.

You can find the two manuals (in Spanish) to download and learn more on the work of Técnicas Rudas here **bit.ly/tecnicasrudas**.

2.3. Pads: simultaneous editing and cooperation

At the radio, we also write! A lot. We draft tables, scripts, booklets, meeting minutes, campaigns, or we transcribe interviews to edit them. Producers and journalists will write texts on their computers, in text editors, as they always have, and then share these files via their Nextcloud or Cryptpad folders. At other moments, however, people will want to elaborate texts together—sometimes even people that do not know each other –, edit them in real time, and reach an agreement between people with different views. This tool is for moments like these.

Pads are web-based text editors for joint text writing between several people at the same time. They are installed on a server and accessed via a web browser. People can connect without having to register, write and see what the others write in real time. Simplicity is the main strength of these tools: they are highly intuitive and anybody with basic digital skills will find these interfaces easy to use. You do not need to install any software and they can be accessed via any operating system and browser.

Primarily, pads are good for writing "living documents" without a long life and that are not meant to be archived: meeting minutes, brainstorming sessions, campaign instructions, document processes, etc. They also allow audiences to take part in the program: answering questions, making suggestions, or asking questions.

Etherpad Lite

Developer	The Etherpad Foundation
Licence	Apache Licence 2.0
Website	etherpad.org
Platform	Website (any operating system)
Price	For free
Languages	English, Spanish, others

Etherpad is the most widely used free software-based pad. The pad's features make it very easy to use: there is no need to register, each participant gets a color and—if you want—a name, there is a chat window and a history of changes. You can return to previous versions in case someone deletes everything, for example, export and import pads, share read-only versions, embed the pad in websites, etc. The array of functions makes Etherpad an ideal tool for working on a team.

If your radio is interested in maintaining a degree of technological autonomy and/or sovereignty, you can install the pad on your server. Yet, if you simply want to write a text, your first task will consist in choosing a publicly accessible etherpad site. It is important that you can trust the organization or company hosting the server, because that is where your information will end up. Clouds, at the end of the day, are not more than somebody else's computer.

© Etherpad, Apache 2.0
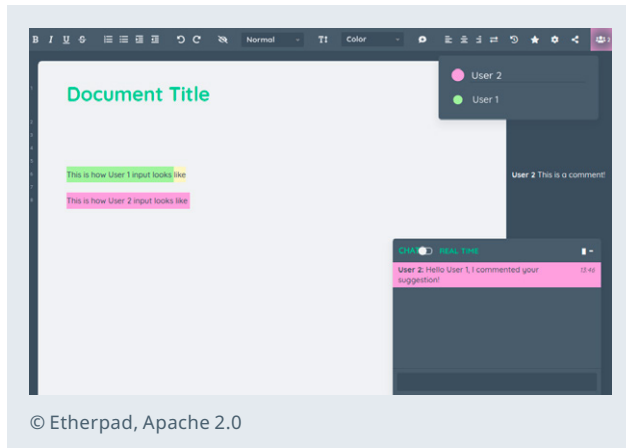
Trustworthy Etherpad hosts that we can recommend include:

– Yanapak: **pad.yanapak.org**
– Riseup: **pad.riseup.net**
– Disroot: **pad.disroot.org**
– Ingobernable: **pad.ingobernable.net**
– Vedetas: **antonieta.vedetas.org**

To create a pad just go to your chosen host address and press "New Pad" for a pad with a random name, or put in a name (no spaces, accents or special characters allowed). In the latter case, your pad's unique URL will contain the assigned name. It will be something like **pad.disroot.org/p/production-meeting**.

If the address has already been taken by another pad, you will see and be able to edit its content — even if it's not yours. If the name is new, a document in blank will open for you and your team to work on.

Pad administrators decide on the available tools. A basic installation of Etherpad Lite will come with at least the following functions:

– Format: bold, italics, and underlined
– Lists: ordered and unordered lists
– Margin: increase and decrease
– Do and undo
– Eliminate authorship colors
– Import and export the pad
– See history
– Settings (show the chat or not, authorship colors, ordered lists, configure fonts, language and decide whether the text is to read from right to left).
– Share (pad, read-only pad, link to embed pad on other website).
– User panel

Installing plug-ins allows you to increase the power of this. Only the etherpad administrator can install plug-ins, not the end users. Interesting plug-ins include: text styles, align the text (to the left, right, center or justified), comments, upload pictures or insert links, etc.[9] If your radio uses Etherpad Lite and you want to install plug-ins, choose from those that have been updated recently.

Some instances have plug-ins installed that delete texts automatically after a certain time. Riseup pads, for example, are deleted after 60 days, but this can be extended to up to one year by adding "keep" at the end of the URL.

Warning! Pads are public and anyone with the URL can access and delete them. To prevent this from happening, make sure to share a read only copy. For example, if you want to circulate campaign instructions in social media freely. Tick "Read only" and you will see how the URL changes, this is now the link you should share.

© Etherpad, Apache 2.0

There are also plug-ins to password protect your pads. However, such private pads have lost one of their most interesting features: accessibility. When dealing with sensitive material you can use Cryptpad, for example.

Alternatives include Firepad, or HackMD, choose the one that best fits the needs of your team.

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[9] Find the whole list of add-ins here: https://bit.ly/etherpadapps.

2.4. File sharing

Working with audios means that you are constantly working with large files. You cannot always attach files larger than 10 or 20 MB to an email and many radios do not use a cloud service like Nextcloud. This forces audio editors and producers to use file sharing platforms.

Lufi

Developer	Luc Didry and the user community
Licence	AGPLv3
Website	demo.lufi.io
Platform	Web
Price	For free
Languages	English, Spanish, others

Lufi is a free software storage service that encrypts files before uploading them. This ensures that Lufi administrators do not have access to the uploaded content. If your radio has its own server you can download and install Lufi. Otherwise use the software through these free instances:

– Disroot: **upload.disroot.org**
– Framadrop: **framadrop.org**

The software's drag-and-drop system makes it extremely easy to use. To begin, select your storage parameters: time (24 hours, 7 or 30 days), whether files will be deleted after the first download, and, if you upload several files, if you want to compress them. Then upload your file, either by dragging it into the window or by selecting it from your computer in the dialogue window that appears when you press the blue button "Click to open the file browser" at the center of the screen.

© Lufi, AGPLv3
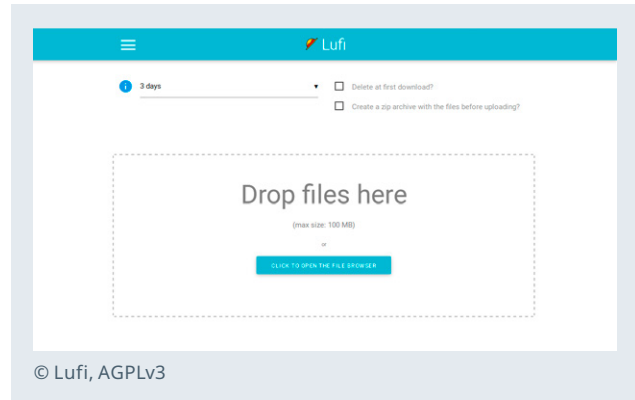
Lufi will then generate two links, one, to share your files, the second to delete them.

© Lufi, AGPLv3
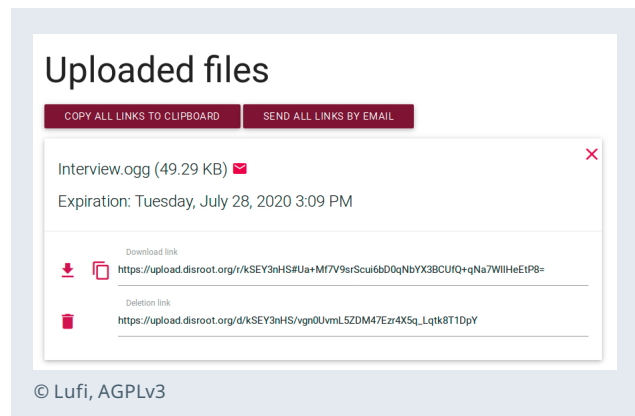
Internet Archive

Website	archive.org
Platform	Web
Price	For free. Donations possible.
Languages	English

If you want to upload materials to archive them on the internet and your radio doesn't have its own website, try Internet Archive. archive.org is a non-profit organization aiming to promote the universal right to access information and allows you to store and access content such as documents, videos, audios, pictures, websites etc.

© Internet Archive, CC 3.0 BY SA

© Internet Archive
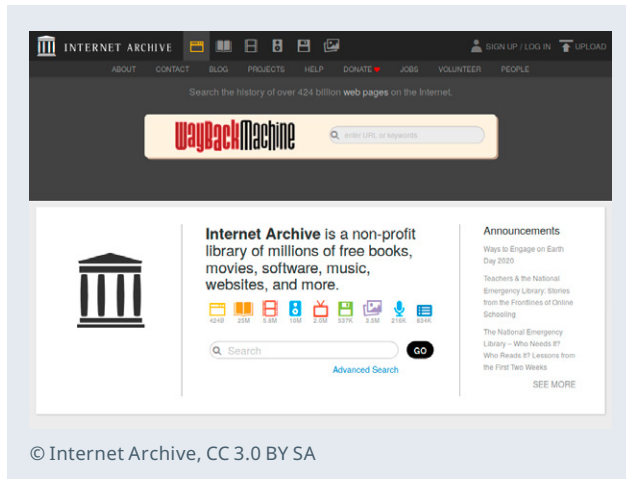
To upload files you will need to sign up. Unlike with Lufi, the material you upload to this platform will be public. You can upload audios, or create play lists, for example for the entire season of a podcast.

One of the most interesting options is that once you have uploaded an audio, the platform enables you to download it in a number of formats (mp3, ogg, afk, m3u) and will automatically generate a torrent file to share through programs such as Transmission, which uses the P2P BitTorrent protocol.

Click the "Manage" link to change the general information for your playlist, in addition to that on the individual files of your list. Unfortunately this site is not intuitive. It takes a while to get used to it, and even more to work with it effectively.

One of the strangest functions of the Internet Archive is the Wayback Machine website repository. This internet time machine, accessed at **archive.org/web**, allows you to visit old versions of common websites. You can also capture and save your radio's website to this digital repository, or use the tool to save publications that you can delete later.

© Internet Archive, CC 3.0 BY SA

You can gradually expand playlists and include podcast episodes as they are published. The editing function is hidden: the "Edit" link is a pencil icon on the left side of the screen, which we have marked in blue in the screen shot. This link provides two options: edit the metadata of each of the elements on the list, or re-name, add or eliminate files from the list.

3. Decentralized radio studios

For mobile broadcasting, in the days of traditional Hertz wave radios, you needed broadcast vehicles sporting antennae. This was expensive equipment forcing you to parade unwieldly antennae masts through town.

Smart phones and mobile broadband have made mobile broadcasting far simpler. Nobody depends on prohibitively expensive Comrex equipment anymore. Today, IP audio codecs — digital internet-based broadcasting equipment — evidently offer greater flexibility than a mobile phone and enable you to install a complete off-site radio studio. But in most cases, a phone and mobile data connection are more than sufficient to connect with the studio.

Digital technologies enable mobile broadcasting, just as they allow the virtualization of radios. In today's decentralized and globalized world — in particular following a pandemic that has seen global lockdowns — it no longer makes sense to continue thinking of a radio studio as a physical, static space anchored to a specific physical location.

In the past, radio production and broadcasting studios needed to be where the transmitter was, but there is no longer any reason for this. And while landline connections are still used to link various studios in a decentralized manner (the strategy used by large radio stations), internet can do the same for a lot less money. Radios have to be ready to move their radio studios anywhere and record and transmit from there. Next, we provide some tips and tools and explain how to do this.

3.1. Recordings

Recording is one of the greatest challenges distance poses to radios and radio producers. Even more so if you are working from home.

But this does not make recording impossible. You can make radio audios from home without sacrificing quality. If you do not have professional equipment, you will need to choose alternatives from the options at hand and apply a bit of creativity.

Here are some tips on ensuring the quality of audios recorded with your phone, a traditional recorder, or microphone:

– Move the phone or recorder as little as possible during recording. Use tripods for greater stability whenever possible. If you don't have one, use a camera tripod, make one from cardboard, or use a glass

– Record at the highest quality setting, preferably in WAV format to not lose fidelity. Watch out: ensure your device has enough storage! If you choose to record in mp3 format, be sure to set the recording to at least 192 kbps

– If you use your phone, don't forget to switch to flight mode so that ringtones and vibrating notifications don't mess up your audio

– Whenever possible, use an external microphone. Sure, not everybody has one, but if you do have one, and it is better than the one your recording device has, use it!

– Keep a distance. Just like with a traditional microphone, keep a distance of about four fingers between the interviewees mouth and your recorder

– Test gain before starting the recording. If the gain is too low, you can increase input. But be careful to not distort the recording, because it will be difficult to repair during audio editing

Cell phone recording apps

Cell phones are small portable computers and we usually do not use them to their full capacity. While high-end devices offer recordings with greater fidelity, even with medium range cell phones you can still achieve good results.

Android has no native audio recording app, yet the majority of companies provide one in their overlays. Apple includes the Voice Memos app in iOS. These basic applications allow you to set the audio format parameters (mp3, AAC, WAV) and quality (high, standard, low) of recordings. In Voice Memo you can also edit the audio.

If you want more features, there are also specific audio recording apps:

– **Dolby On**. Developed by Dolby Laboratories, this app allows you to record and edit audios applying pre-determined styles, noise reduction or adjusting bass and treble for example. You can also cut the beginning and end of the audio. The app is available for free in the Android and iOS app stores.

– **ASR Voice Recorder**. As one of the most popular Android audio recording apps, this app enables you to record in a number of formats and convert them later. An interesting feature of ASR is Nextcloud, Dropbox, Google Drive or FTP integration, which means that you can record with high quality settings without fear of running out of storage capacity. The app is available for free in the Android app store.

– **RecForge II**. Another good Android alternative that allows you to record, and also edit audios. Editing audios on a phone is not easy, but you will be able to cut and combine segments, which is more than enough.

Improving acoustics at home

This is maybe the most crucial aspect to consider when recording from at home. How do you replicate the recording studio's environment? Two aspects to consider that are often confused are soundproofing, i.e. that no sound from outside comes in, and acoustic conditioning. Aspects to consider include:

– Identify a quiet place in your home (if possible) where there won't be any unexpected noises: far from windows and corridors and far from spaces where people will be when you start recording. If you do not have such a space, maybe you can negotiate for a quiet moment. If you have kids, let them take part in the recording so that they are entertained and it might end up being fun for them.

– Sound will bounce off them, so don't attempt to record on smooth and hard surfaces. Porous surfaces are better: foams, curtains, blankets, cork. These will help absorb waves and prevent reverberations.

– Hertz Lovers is an Open Source acoustic project that offers tutorials for sound absorbing panels and diffusers using wood, polystyrene and glass wool (or environmentally friendly alternatives). Step-by-step descriptions and lists of materials are available on their website.[10]

– Lacking access to an adequate physical space, you can still make your own portable vocal booth, which may offer more versatility. For example, use a blanket attached to the ends of a cardboard box with clothes pins; get five absorbing pieces of foam and stick them together along the inner sidelines; or build a folding screen out of four panels

– In times of lockdown, closets and large built-in closets full of clothes and coats that absorb sound can become an unexpected ally. It's not the most comfortable space in the world, but an emergency solution that is just as good as putting a blanket over your head. It will stop the sound from reverberating and sounding like it was recorded from inside a cathedral

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La MicroCalle

La MicroCalle is a radio series developed and produced at the height of the Covid-19 pandemic with testimonies from people who had to remain out on the streets during the most critical moments of the crisis. Raúl Rodríguez, the producer and director, went out in search of stories from essential workers, people who experienced the lockdown far from their homes, or simply of people who were witnesses of the silence that fell upon the world.

He himself went out to record some stories, while others he got over his networks, or as audios through instant messaging services. "I think the main challenge we faced in the production of this series was to find stories. This was not just about identifying people—friends and broader networks in which they were intermediaries—but also, and in particular, to transform these testimonies into actual stories. Not every story was worth telling, there was a need to guide interviewees. As Rodríguez tells us, "The translation from a rational assessment of the lockdown to an emotional experience wasn't easy."

The series was transmitted by the *Aire en casa* program of Radio Cuarentena from March to May 2020. Later it was uploaded as a podcast, with links added to connect stories with elements in common.

You can listen to and download the podcast here **bit.ly/microcalle** (in Spanish).

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[10] https://bit.ly/hertzlovers.

3.2. Mumble

Developer	Mumble VoIP Team
Licence	BSD 2.0
Website	mumble.info
Platform	GNU/Linux, Microsoft, macOS, Android, iOS
Price	For free
Languages	English, Spanish, others

Mumble is a free voice over IP (VoIP) software that was originally developed to enable gamers to communicate while they played online. Its low latency audio codec consumes very little data and therefore spares bandwidth for other activities. This turns Mumble into an ideal transmission tool for environments where connectivity is poor or where data packages are expensive. Apart from being free software, Mumble offers the additional advantages of being a cross-platform tool that offers transport layer security encryption (TLS).

Like other communication software, Mumble is based on a client/server logic. To use Mumble, you will need to install software on a server, access somebody else's server or use a public one. People you chat with will need to install the program (client) on their computer or phone, and configure the server settings. After connecting, select a chatroom, and, just like in IRC rooms, you can start listening and talking.

The Mumble client allows you set a number of communication parameters. For example, the modes of transmission: talk by pressing a key (like it was a walkie-talkie), or transmitting continuously for live transmissions, there is also a function to activate the microphone if your voice is detected. A further option to reduce data consumption is available by adjusting the audio quality of transmissions: the higher the quality the more data and vice versa.

For short reports, messenger apps likes Signal, Telegram or Whatsapp are the better solution, or even just a phone call. But if a radio wants to do a 2 hour broadcast off-site, or from various homes with numerous people, Mumble does offer a set of advantages:

– **There is no delay.** If you transmit from only one location, you only need to set up a stream. But if you want people in a number of locations to participate — which is likely to happen under social distancing conditions — or include phone calls, Mumble is the perfect tool because it reduces delay in communication to a minimum. This improves the feeling that everybody is sitting at one table.

– **Autonomy.** You can install the Mumble client on your radio's server — that is, if you have one — or on a computer that you use as a server. The program is easy to set up. You don't need more than know a little knowledge of GNU/Linux and how to configure a router so that you can access Mumble over the internet. Manuals in English are available that help you install Mumble on the server.[11]

– **Security.** Another important factor is that the communication between the client — a computer or smartphone — and the server that you connect with, is encrypted, which adds an important level of security to the conversation. If you want to gain a deeper understanding of secure communication, we recommend you take a look at the *Fundación Acceso* and Rafael Bonifaz manual on how to install Mumble with TOR. You can also install Wahay, a Mumble client set by default to run through the TOR network, which is being developed in Ecuador.[12]

If your radio does not have its own instance of the Mumble client, use public instances that offer chat rooms:

– Disroot: **mumble.disroot.org**
– Komún: **rtfm.komun.org**
– MyFirst: **support.mayfirst.org/wiki/mumble**
– Red de Radios Comunitarias y Software Libre: **liberaturadio.org**

These instances provide you with a server name and port to set up your client. Mumble's client interface is simple and once you have installed it, the default settings window with all your configured servers and geographically organized Public Internet chat rooms will open. If you want to add a new server, press "Add new…" A small dialogue box will open:

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[11] Manuals to install Mumble: https://bit.ly/mumbleEN
and configure the router: https://bit.ly/39JbHoq

[12] Manual Mumble+TOR: https://bit.ly/mumbletor
and Wahay: https://wahay.org/
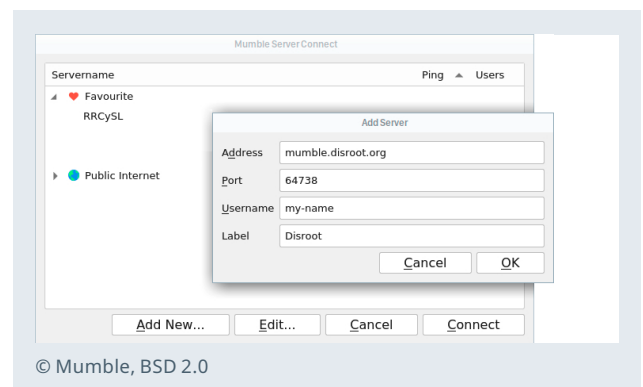
© Mumble, BSD 2.0

You will need:

– Address: the name of the server (mumble.disroot.org for example).
– Port: 64738, Mumble's default port.
– Username: the name you want to use (no spaces, no accents).
– Label: the name of the connection that the list of servers displays.

Press "OK" and the new server will now appear in your favorites.

© Mumble, BSD 2.0
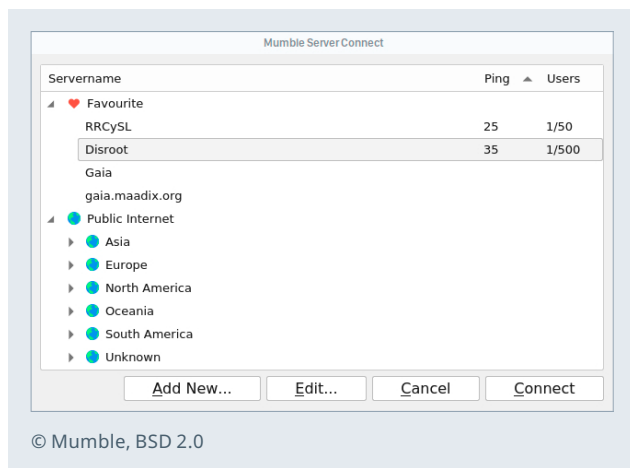
The client in the screenshot has been configured for the Disroot and Red de Radios Comunitarias y Software Libre servers. Simply double click to access the server and chat rooms. Connect yourself and a list of available chat rooms will appear. Either enter an empty chat room or create one following the instructions in the Disroot manual.[13]

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[13] Instructions for Mumble chat rooms by Disroot: https://bit.ly/mumble-disrootEN

© Mumble, BSD 2.0
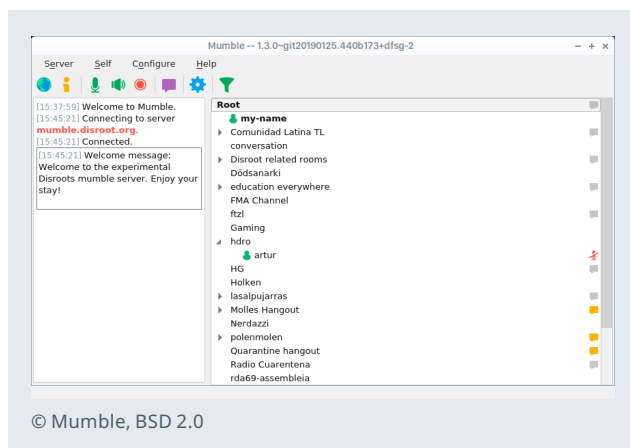
Some radios have argued that they cannot expect guests to install an application, which is why Disroot is currently testing a browser-based version of a mumble client: **mumble.disroot.org**. Should all else fail, you can still always resort to WhatsApp video calls that now allow a maximum of eight participants. However, WhatsApp video calls do consume considerably more data than Mumble and are less secure.

Troubleshooting

Even if you follow the installation and setup guide step by step, problems with Mumble can occur that will prevent you from communicating normally through the application. Check the following before getting discouraged:

– Have you set the server up correctly? Check the name and port. The majority of people use the default port, but it could change.

– Are you connected to the internet? Try restarting the router and make sure you still have data

– In a single chatroom, there cannot be two people with the same name. A second user with the same name as someone who is already in the chat room won't be able to connect. Be precise with names to avoid having two people use the same name.

– Make sure that your client—Plumble for Android for example—is supported. Sometimes projects are abandoned and no longer updated. Make sure to have the latest version of your client installed.

If none of this helps, close and restart the program, which sometimes works

© Centro de Producciones Radiofónicas

Radio Cuarentena's Aire en casa program

During the early stages of the Covid-19 crisis, the Centro de Producciones Radiofónicas (CPR) radio launched *Radio Cuarentena*, a radio festival to make life under lockdown a little more bearable. For two weeks, CPR broadcasted daily programs with contributions from different parts of Latin America.

Among them, *Aire en Casa*, a program that offered a space for radio producers and their friends to share personal lockdown experiences. As Francisco Godinez Galay, the director of CPR, explains, "the most valuable aspect of this experience was that we could meet and talk about the things that were happening to all of us. In an innovative and unheard of approach, we attempted to create a kind of audio archive that would register what we were experiencing, through the lens of a radio program."

Thanks to Mumble, *Aire en casa* managed to unite people from Barcelona, Bogotá, Buenos Aires, Castellón, Mexico City, Lima, Madrid, Montevideo, Quito, Santiago de Chile and Zaragoza at their virtual studio simultaneously. Godinez Galay concludes, "Mumble was a genuine find and very easy to use. Everybody got used to using Mumble really fast, and this allowed us to recreate a virtual studio with good broadcasting quality. Output levels sometimes varied, because we all had different material bases: we all used different microphones and equipment and had our own ways of talking. The sound of these differences ended up identifying our situation and was, also, a way of storytelling that spoke to what we were going through."

The program continued well beyond the festival and continued for over three months. Find all of the seasons of *Aire en Casa* — which are called "phases", analogous to the phases of the lockdown – under the Creative Commons licence 4.0 BY-SA at **bit.ly/aireencasa**.

3.3. Jitsi Meet

Developer	Jitsi
Licence	Apache 2.0
Website	jitsi.org
Platform	Web, Android, iOS
Price	For free
Languages	English, Spanish, others

Jitsi Meet is a free software group, video conference platform. The software is installed on a server — which can be your radio's server or a free public instance — allowing users to then connect with each other through a browser. Argentina's Pirate Party has published the Jitsimeter[14], a list of public instances with details on the provider, country, security, and connection speed of a number of public instances.

Jitsi is a free platform, which has powerful features and is very easy to use. Radios can use the platform for team meetings — it's always nice to see each other — and use Jitsi's synchronized communication potential to equip decentralized radio studios. To improve the connection, you can turn the camera off and use only audio — even though it would then make more sense to use Mumble. However, Jitsi has an integrated system of signs that people can use to determine who will speak next, a feature that increases the flow of discussions.

Jitsi's WebRTC protocol allows online communication in real time. This means, there is no need to install any kind of program on your computer. To use Jitsi on your phone, you will need to install Jitsi Meet, which you can download from Playstore and F-Droid for Android and AppStore for iOS.

[14] https://bit.ly/jitsimeter
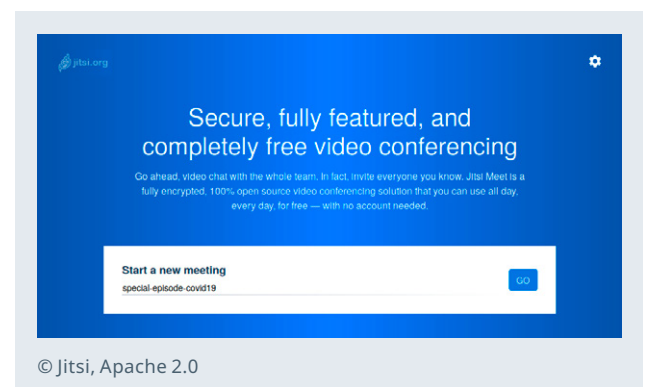
© Jitsi, Apache 2.0

There are two ways to start a meeting: go to the URL of the instance and write the meeting name in the central box and then press "Go", or directly add the meeting name to the end of the instance's URL, so enter for example **meet.jit.si/covid-19specialprogram** in your browser's address bar. In both cases, you get the same exact result.

When you create a meeting, a window will first prompt you to grant Jitsi permission to access your computer's microphone and camera. Pay close attention when you grant this permission.

© Jitsi, Apache 2.0

In the window select the camera Jitsi will use—your computer's webcam or an external camera—and the microphone—the integrated or an external microphone. It is important to use the right audio settings, otherwise the other people in the meeting won't be able to hear the rest of the participants. Here, choosing the option "*Built-in Audio Analog Stereo*" gives Jitsi permission to use your computer's microphone.
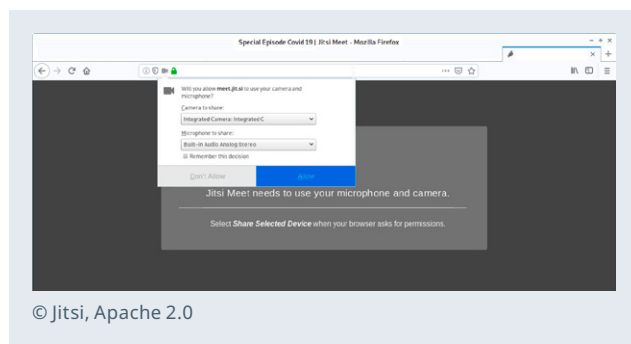
Having set these permissions, you will be granted access to the meeting. Jitsi's web interface is relatively simple and intuitive, but you should nonetheless spend a little time to get to know all the functions.
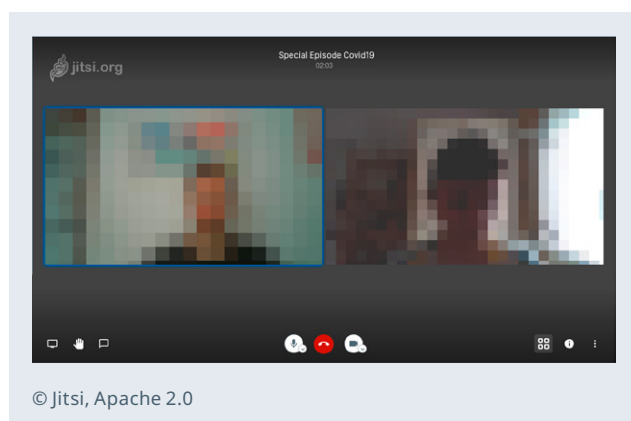
© Jitsi, Apache 2.0

The name of the meeting appears at the top of the screen along with the meeting run-time. In the center, you will see the peo-

ple who are taking part in the meeting, with the person currently speaking highlighted in blue. Most of Jitsi's controls are located in the lower part of the screen. Buttons in the lower left-hand corner allow you to share your screen, raise your hand to ask for permission to speak and open a chat to write to the other people in the meeting. You can provide a name the first time you open the chat. In the center there is a button to activate or turn off your microphone and camera. Finally, in the right hand bottom corner, the four-dot-icon allows you to either toggle tile view or focus on the person speaking—the screen switches between a picture with all meeting participants and the person speaking in full screen—; information on the conversation—here you add the password to access the conversation to prevent outsiders from entering—and finally, an advanced options menu.
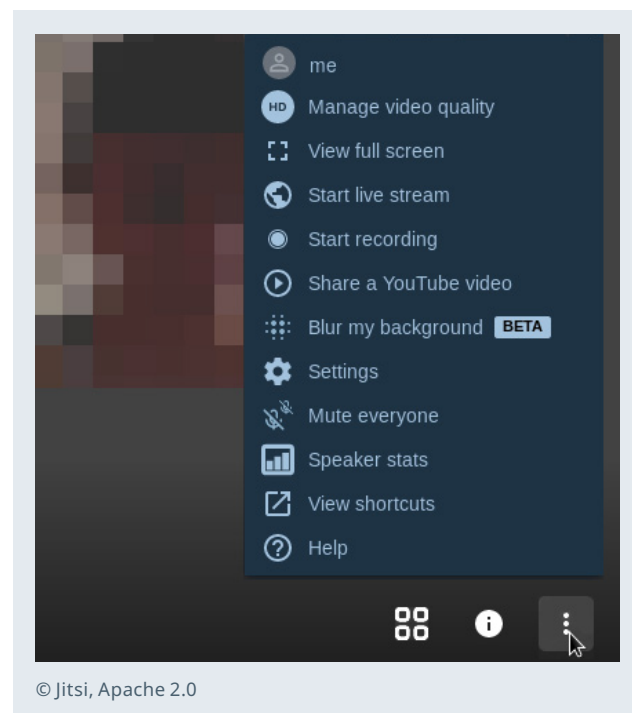
© Jitsi, Apache 2.0

This menu allows you to adjust the following parameters:

– Adjust the quality of the video: high, standard and low definition and optimization for low bandwidth

– Switch to full screen

– Begin streaming your conversation, check the online streaming section if you are unsure about starting an audiovisual stream

– Begin recording your meeting: to save your call, always explicitly ask participants for their consent to begin recording. To activitate this option, you will need to register with a

Dropbox account. Just like live streaming, not all instances offer this option

– Share a video on YoutTube

– Blur my background: useful to add a layer of privacy

– Settings: Devices (to show which permissions have been granted), Profile (to set your display name and gravatar email), Calendar (to integrate your Google and Microsoft calendars and schedule Jitsi meetings) and More (to set the meeting's language). The first person to enter a meeting gets administrator rights

– Mute everyone: if you want to decide who will speak

– Speaker stats: shows how long each person spoke for

Some advice on moderating videoconferences

If you are going to use Jitsi Meet during a live radio program, you will need to ensure that the meeting flows. This definitely requires practice, but there are things you can plan for and that you should take into account before any broadcast, like:

– Check each participant's technical settings: do they have a good connection? Is video supported? Does the browser recognize the camera and microphone? Ideally, you should check this about one hour before you start broadcasting. But not much more than that, because settings can change from one day to the next.

– Make sure that all participants use headphones so that you don't get bothersome noises from feedback loops.

– Show participants how to silence their microphones and activate them only when they speak. Pressing "m" on your keyboard will mute and activate the microphone.

– Agree beforehand on visual signs. The camera allows you to ask permission to speak, to show you agree with what someone is saying, and it tells you who will speak next, etc. For this to work smoothly, everybody will need to pay attention to the moderator.

– Recommend your guests to use a neutral background that does not reveal identifiable personal information. If they want, they can also use the experimental function that blurs the background.

Troubleshooting

– Make sure everything is plugged in as it's supposed to be. Sounds simple, but mistakes do happen.

– Check the camera and microphone permissions. On the far left-hand side of your browser's address bar, you will find the small camera and microphone icons. Clicking on them will show you the set permissions and restrictions.

– Check the browser's sound source. Find that information in Jitsi's conversation settings, in the lower left-hand menu "More actions".

– It is always good practice to keep your browser updated. If you are still having issues, try with a different browser. Jitsi runs best on either Chromium or Chrome.

– Check the connection speed. If it's slow, you can configure image quality by clicking on the menu "More actions" at the bottom right-hand side or by pressing "a". Select the "Low bandwith" option. You can also try to turn off the camera by pressing "v" and use only audio to communicate.

– Check whether certain elements or applications could block specific content and interfere with the videoconference.

© Laboratorio de Bollería Fina

The handbook "Cyberparticipation Dyke Manual".

The Bollería Fina Laboratory of the dyke block of Madrid's Critical Pride published the *Asamblearismo en tiempos de pandemia* manual specifically to "develop a common basis for online participation" to promote collective action. As members of the collective explain, "We first thought of this as an internal manual, but then we decided we might as well share it and help people stay mobilized even during the lockdown."

The text, which is distributed for free, recommends using Jitsi and pads as communication platforms and proposes a set of roles for people to facilitate online meetings: dynamizers, moderators and recorders to take the minutes. The text proposes signs to comment on what people are saying without interrupting, and provides a series of tips on how to make the meeting a more pleasant experience for everyone.

Jitsi allowed them to keep up group task force meetings, in spite of not being able to physically meet. For example, they organized the joint publication of texts and illustrations in a fanzine that speaks about lockdown experiences from a lesbian perspective. Video calls facilitated this process, and they even worked on the layout together using the share screen function.

For Lesbian Visibility Day on April 26, the *Plataforma de Encuentros Bolleros de Madrid* network decided to organize the *II Jornadas Bollofeministas* event, online this time. They broadcasted meetings by sending the Jitsi signal over YouTube. The organizers had understood that "while many people were using Instagram's live function to communicate with their audience, these videos were later lost. Streaming allowed us to save conversations and offer them to a larger audience."

Find the schedule and videos from this conference here: **bolleras.noblogs.org**

Limitations and risks connected to proprietary alternatives

This section is about video conference platforms, so it might seem strange that we do not touch on Zoom, a highly popular software during the early 2020 lockdown. It wasn't an oversight, we left Zoom out on purpose. Zoom's severe security and privacy issues—described as **"catastrophic"**[15] by experts—are more dangerous than they were initially believed to be. *Crackers* lined up to find weaknesses, and, as Motherboard wrote, **"hoped to sell these bugs for thousands of dollars to government agents and others."**[16] Some bugs were fixed, others, however, are inherent to Zoom's code.[17]

There are definitely situations where you can't require people to use a particular tool and not another. If your employer uses Zoom at work, you might have no alternative. But in more informal contexts, you could still recommend more privacy respecting platforms: meetings with your organization, friends and family. The less we use Zoom, the better. And if you are forced to use Zoom, it's a good security practice to use it on your computer through a virtual private network (VPN) and not use any other application while zoom is open: don't navigate the internet, open emails, don't write down passwords, don't do anything at all.

[15] Paul, K. (April 2, 2020). "Zoom is malware": why experts worry about the video conferencing platform. The Guardian. https://bit.ly/zoom-desastre

[16] Franceschi-Bicchierai, L. (April 8, 2020) Interest in Zoom Zero-Day Hacks Is "Sky-High" as Meetings Move Online Hackers are turn. Motherboard. https://bit.ly/peligros-zoom

[17] Schütze, K. (Apr 16, 2020). Data security in the coronavirus age. DW. https://p.dw.com/p/3b2HT
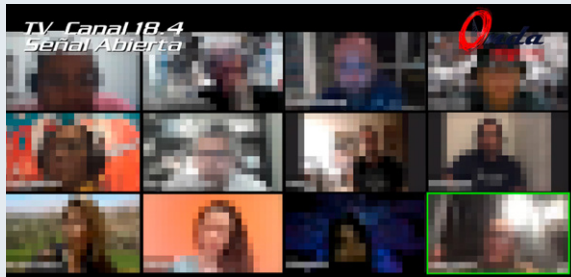
© La Radio Salvará al Mundo

La radio salvará al mundo

A radio broadcasted with an image, is that still a radio? Alejandro Cornejo Montibeller, head of the radio faculty at the San Martín de Porres University in Peru, proposed a virtual laboratory to teach about radio to a group of professors through a distance learning course. This gave birth to the *La radio salvará al mundo* (LSM) project, a live program in the form of a videoconference, which is recorded in a decentralized radio studio.

Radio, they say at LSM, is the only media that will survive the apocalypse. In the context of a crisis, as Carol Torres Villachica, a professor of radio and member of the initiative explains, "the program offered us opportunities to connect and create radio programs in spite of being isolated from each other. Even if we did encounter difficulties, because in a country like Peru connectivity is not stable everywhere, working through a videoconference platform meant we had sufficient flexibility, so that if someone couldn't connect, the others would cover that gap."

"One of the most interesting elements of *La radio salvará al mundo*," Cornejo Montibeller adds, "is that we broadcast the videoconference through terrestrial digital television and social media. This generated a small community of followers, with whom we interacted through media such as WhatsApp or Instagram". The initiative was such a positive experience that once university classes started up again, they used the system to continue broadcasting along with students.

The programs that were broadcasted are available on YouTube: **bit.ly/3cqMVc5**.

3.4 Remotely connecting to the broadcasting station

During the mandated lockdown it became impossible to go to the studio. In many cases, this change came suddenly, leaving no time to move equipment or make backups to be able to work from home. By which means could you handle this situation and continue to use the radio's computer, but from another location?

There are a series of remote access applications that allow you to access computers and control them from another computer, as if you were sitting in front of the remotely controlled computer. For example, you can manage the broadcast automation software, access folders with locally saved files, or, restart the computer if you want. While this may seem pretty advanced, with the following applications, doing this becomes quite easy. More than enough detailed information on how to configure and use these tools is available.

Generally speaking, all of these tools work in similar ways. You will need to install the same application in both computers. The remote computer is called "server", and the one you are using is the "client". You only need to go to the server computer once and permit the connection, from then on, as long as you leave the computer on, you can work remotely from it.

The applications we can recommend include:

X2GO. Free software and available for GNU/Linux (also for Raspbian), Windows, macOS, and FreeBSD. You connect through SSH over the IP address, so if the IP changes you will need to re-establish the connection. Download it here: **wiki.x2go.org**

AnyDesk. Proprietary software with a **Freemium** model — free for personal use. It's available for GNU/Linux, Windows, macOS, Free BSD, Raspberry Pi, Android, and iOS. Download it here: **anydesk.com**

TeamViewer. Probably the most popular of these programs. TeamViewer is free proprietary software. It's available for GNU/Linux (also Raspbian), Windows, macOS, FreeBSD, Android, iOS, Windows Phone, and BlackBerry. Download it here: **teamviewer.com/es**.

4. Streaming broadcasts online and remote connections
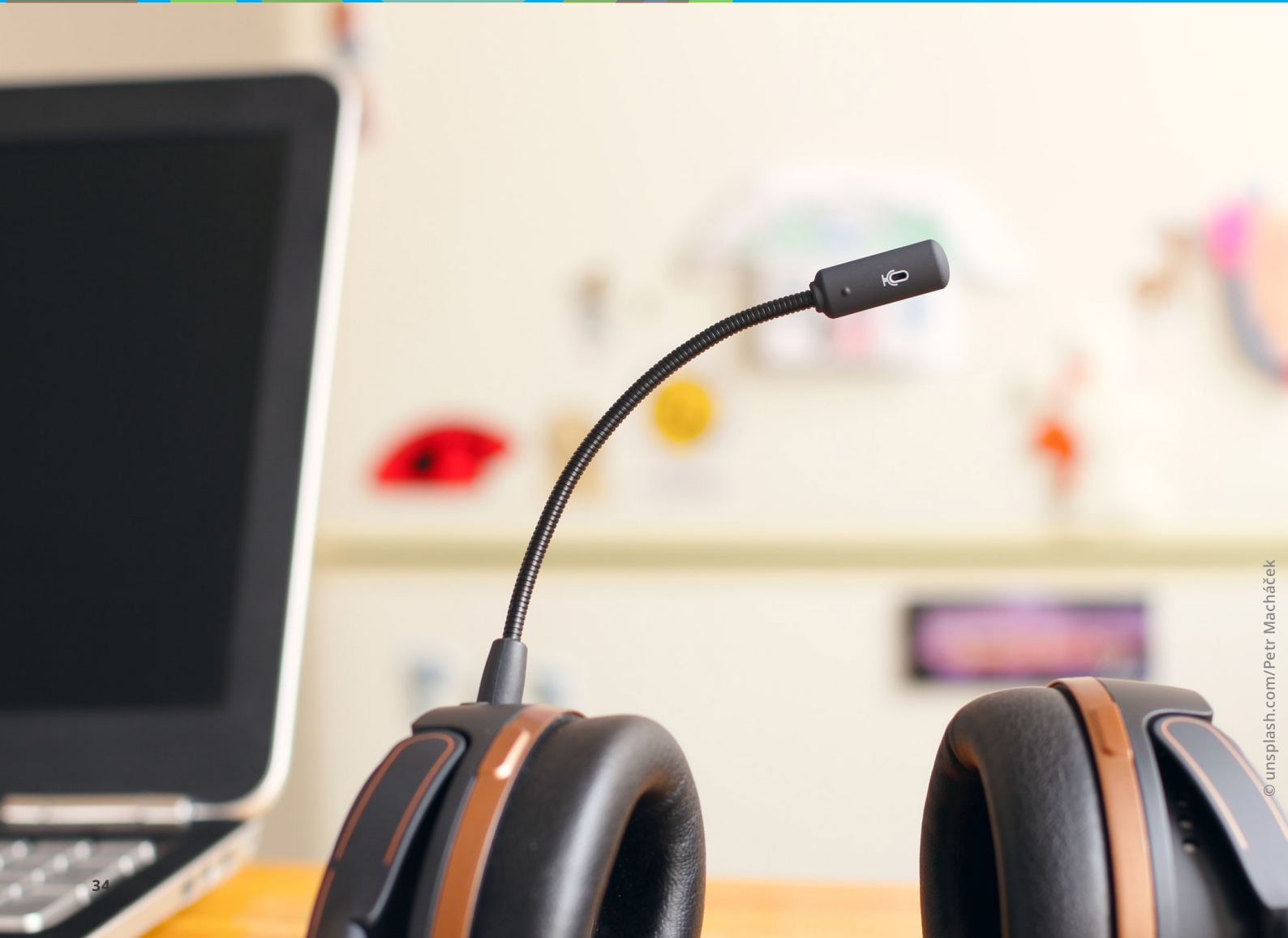
"Online radios" depend on a series of simultaneously available prerequisites: radio program production in and of itself, adequate equipment, streaming software (installed on a server), software to transfer the signal between the computer and the server, as well as a corresponding software or online music player to listen to the broadcast. This section now takes a closer look at all the instances of this process. The objective is to ensure that radios have the tools they need to broadcast online and build a connection between the two points.

As a technology, streaming goes beyond merely putting a radio online. Streaming allows Hertz wave-based radios to broadcast their content via the internet and thereby reach far more people. Above all, during these particular times, people who live abroad wish to listen to the local radio programs from their home countries. However, streaming is a technology that can also be used to send a signal from any given point to the radio studio — for example during off-site, open radio or home broadcasts — and to transmit conferences, courses or specific events to an audience.

4.1. Streaming equipment

To start streaming you really don't need more than a normal computer. In particular if your radio is going to broadcast recorded audios, music and some voice-overs through your computer's internal or an external microphone.

Yet, if the idea is to have a "live" radio, i.e. to have a couple of people talking, underlay talking with music, then it makes sense to spend money on equipment. This can go from 0 if you seek donations and used equipment, to hundreds of dollars. The equipment we describe here costs in the range of 100 to 150 USD.

Once you have bought your equipment, it is important to take very good care of it. Maintenance is key to extending the life of your electronic equipment and ward against the effects of planned obsolescence:[18] wipe dust off regularly, unplug equipment when it's not in use, adequately protect it when you store and transport it, and treat connector plugs with care, etc.

Mixing consoles

Mixing consoles, or *mixers*, efficiently manage all audio input and output, equalize sound and add effects if necessary. For audio projects with a certain complexity, such as a live program, they are the ideal choice. If the first picture that comes to your mind is that of a huge console with hundreds of faders and knobs, don't worry, very affordable options with just a few channels do in fact exist.

Behringer's Q1002USB, for example, is a good choice in terms of quality and price. But mixers in this price range also include Mackie's Mix8, Soundcraft's Notepad 8 FX, or the Alesis Multimix 8 FX USB.

Audio interfaces

Interfaces, also called (audio) workstations, are external cards that increase a computer's audio processing capacity, but they are not specifically designed for audio production.

Behringer's UMC202HD is a good choice. One category higher, yet in the same price range, are also the PreSonus AudioBox or the M-Audio Air 192.

Microphones

In the 70 to 200 U$D price range, there is an increasing offer of dynamic microphones with an XLR, plug, mini-plug or USB connector. You will always have to choose from what is available in your country. Trustworthy choices include Shure's classical SM-58 or Sennheiser's Evolution series. It makes sense to use a tripod stand to reduce noise when you move it, and a pop filter to eliminate p and b noises. You can either buy or make these.[19]

4.2. Streaming servers

Put simply, streaming is the continuous broadcasting of data, just like a stream of water. Technically the process of broadcasting radio online consists in connecting and sending your computer or phone's signal to a streaming server. Listeners then need to connect to the same server, which will send them the signal through a player provided on a website or blog.

Like many of the other services and platforms we have referenced in this manual, radios with access to a server can install the streaming software on it. For those who do not have a server, there are a number of companies and organizations that offer streaming services for free or at a low cost.

Essentially, there are two main programs that you can choose between to install on a server and broadcast online. These are Shoutcast and Icecast. The latter is free. These are the software programs that the radio will need to install if it has its own server.

[18] Gault, M. (December 18, 2019). "Where Our Smartphones Go When They Die". Vice. https://bit.ly/ewasterepair

[19] TechBroll (2016). How to make a DIY pop filter in 2 minutes https://youtu.be/OCZhr1GKYb0

Platform	Streaming software	Features	Player
Listen2MyRadio	Icecast Shoutcast	5,000 listeners	Use your own player. Without own HTTPS.
MyRadioStream	Shoutcast	200 listeners, 128 kbps	You must use their player.
Caster FM	Icecast	400 listeners, 128 kbps	You must use their player.

Commercial services available for free

These companies try to attract clients by offering freemium deals with certain restrictions attached to the services they offer and that then try to sell you premium packages. They remain a good option, in particular, to just get an online radio project started, when you don't yet know whether you want to invest money, or simply when funds aren't available.

Listen2MyRadio - listen2myradio.com

This is one of the oldest services on the market that offers free accounts and allows you to reach up to 5,000 listeners with medium broadcasting quality. You choose between a server with Shoutcast—proprietary software—or Icecast—free software. While the Icecast server allows you to use your own player, it is not HTTPS, which means that if you embed it on a secure protocol website (HTTPS/SSL), Chrome browser users won't be able to hear you. Premium accounts cost from 50 USD per month and include a 5 GB AutoDJ.

My Radio Stream - myradiostream.com

A free account allows up to 200 listeners at any moment with a 128 kbps quality stream. Premium accounts cost from 6 U$D per month. If you want to use secure protocol (HTTPS/SSL), you will need to upgrade to premium.

CasterFM - www.caster.fm

This service will allow a maximum of 400 listeners and a streaming quality of 128 kbps. If the account is not used for 2 months, it is deleted. CasterFM enables you to embed a player on your radio's website and, to a limited degree, personalize the color settings. Premium subscriptions start at 80 U$D per month with a 500 Mb Auto DJ.

Among freemium options, CasterFM is possibly the best choice because it offers a player that you can embed on your website, and avoids the problems Chrome is having with HTML5 players.[20] It's a bit large, but saves you from having to go to an external page full of ads to listen to the radio.

Free servers for community radios

The following services are for social purposes and are non-commercial. So, if you want to develop a test or commercial project, it's best to use the services mentioned above, or buy streaming capacity outright. The services in this section are sustained by people who make economic and personal sacrifices—donations, voluntary payments or by developing projects—and are directed towards community media and social organizations.

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[20] Radios Libres (16 April 2020). Mi reproductor HTML5 no funciona en Chrome. https://bit.ly/html5Chrome

Platform	Streaming software	Features	Player
Zeno FM	Icecast Shoutcast	Unlimited listeners, 320 kbps Audio DJ 500 themes	Offers a player, but you can use your own
Yanapak	Shoutcast	Secure protocol HTTPS	Use your own player
Giss TV	Icecast	-	Use your own player

Zeno Radio - zeno.fm/freeradiostreaming

This service aims to "empower social broadcasters and minority audiences," in particular those who speak indigenous languages. While the interface — as with most of these platforms — is in English, it is very intuitive and easy to use. Featuring an unlimited number of users, good streaming quality of 320 kbps, you can choose between Shoutcast and Icecast (preferable). A very clear control panel also offers detailed listener stats.

Another benefit is that you can use Auto DJ with a capacity of 500 songs. This means that even if the computer you are broadcasting from turns off, your radio will continue working because your music is broadcasted directly from the Zeno server, where your tracks have already been uploaded. This ensures you are always online.

Zeno Radio offers a slim player to embed on your website. Moreover, the player works with the latest versions of Chrome, bypassing a common problem from the browser's older versions.

Yanapak - yanapak.org

Yanapak is an autonomous server, which is developed and managed based on the principles of freedom, mutual support and a free software philosophy. They offer streaming to "people, collectives, organizations, and communities that believe in the power of grassroots communication as a tool for social transformation and local advocacy in the face of the current productive system".

Test the service with the test settings freely available on their website. For a full account you will need to write to contacto@yanapak.org. In line with the organization's philosophy, they use Icecast, and, most importantly, secure protocol (HTTPS) streaming, which allows you to install HTML5 players that will work in all browsers. They offer streaming services for free, but it's a good idea to financially support the project and keep it viable.

GISS TV - giss.tv

This is one of most widely used free streaming servers. But, as they emphasize in the terms of use, it "is not a service, or a company. It cannot be used for any commercial purpose."[21] The service aims to promote testing and research of free technologies for grassroots objectives. If you use your channel for other reasons, it will be removed. GISS TV accepts donations to keep the project running long-term.

For pay servers

Numérica Latina - numerica.latina.red

Radios and social organizations are very familiar with this platform, which helps them with technology-related processes. It offers WordPress, secure Nextcloud-based clouds, email, and online radio services. Their streaming plans, at a cost of just 20 U$D per year, allow you to have an unlimited number of listeners and run with secure protocol (SSL/HTTPS), which means that you can embed your own HTML5 player on your radio's website.

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[21] http://giss.tv/

4.3. Broadcasting software

After signing up on one of these platforms, you will be provided with the settings to access the server and begin broadcasting: an IP-address and a port, a password, a mounting point and, if you are going to be using Icecast, a user name.

To connect your computer's signal with the streaming server and dispatch your audio, you will need a software serving as the transmitter. This software will take the signal coming from your soundcard, codify it and send it to the server.

BUTT

Developer	Daniel Nöthen
Licence	GNU GPLv2
Website	danielnoethen.de/butt/
Platform	GNU/Linux, Windows, macOS
Price	For free, donations campaign
Languages	English

Broadcast Using This Tool (*BUTT*) is a free software client that transmits a computer's audio signal to a streaming server. It neither automatizes nor plays, it just takes what your soundcard emits, codifies it and sends it to the server. Advantages include:

– it's cross-platform, install it under GNU/Linux, Windos and macOS
– works with Icecast and Shoutcast servers
– record the broadcast while you are transmitting the signal
– preconfigure and save multiple servers

After installing the software, you will need to configure the streaming server. To do this, click on Settings, and a window will open with several tabs to configure BUTT. In the first tab (Main) you can configure the streaming server, and information on the stream.


© BUTT, GNU GPLv2
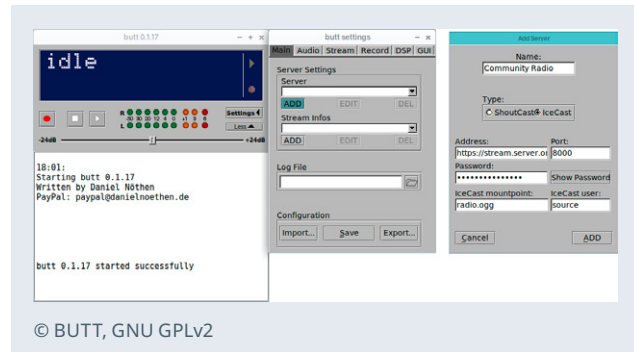
Click on ADD and a window will open, where you can insert the settings you have received from your streaming provider.

– **Name:** the tag that identifies a stream in case you have configured several streams

– **Type:** mark if you want to use Shoutcast or Icecast

– **Address:** the address of your streaming server

– **Port:** the default port is 8000, if not your provider will let you know

– **Password:** issued by the provider

– **cecast mounting point:** given by the provider, in some cases you will need to add the audio codec filename extension (mp3, ogg, etc.)

– **Icecast user:** the default parameter is source, in all other cases the provider will let you know

After introducing all the required information, click ADD to save your settings. The tab will close. Then click Save and the server will be configured and ready to use. You only need to go through these steps the first time you configure it.

In the Main tab you also configure streaming information. Listeners will then be able to identify who is broadcasting the signal. Press ADD (under the Streams info box) and provide a name, description, gender, and, if your radio has an account with one of these services, the ICQ, ICR, or AIM accounts. Lastly, decide, whether you want the server to be public or not. Remember to always click on ADD and SAVE to keep your configuration for later use. If, for example, you share a server between several people, you can also link various profiles to one streaming server.

Use the other tabs to configure:
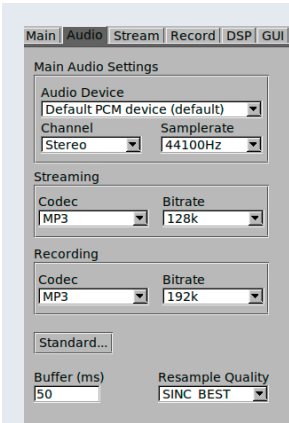
Audio tab: Allows you to adjust the audio transmission parameters. Keep the default configuration if you are not sure about what you are doing. Under Audio Device, select the audio source for broadcasting; under Channel, choose between mono and stereo; under Samplerate, adjust the sample frequency; under Codec, choose between mp3 and ogg; under Bitrate, set the quality of your transmission.

Digital Sound Processor (DSP) when activated, equalizes the signal.

Stream tab: search for the names of songs that you are broadcasting from a determined list. The option is not often used and not really necessary, so leave the boxes empty at first.

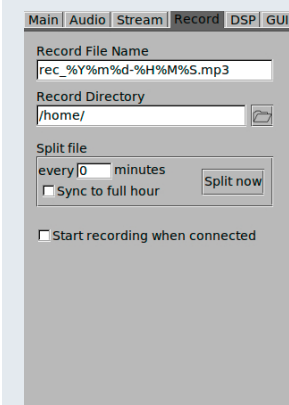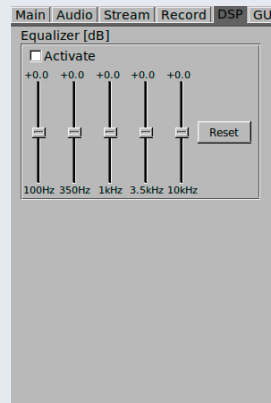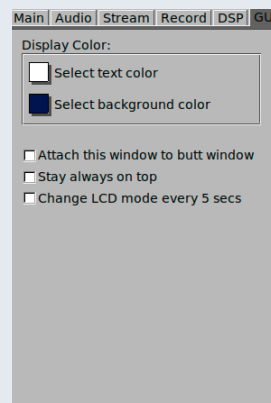GUI (Graphic User Interface) tab: select text and indicator colors. Also select whether windows you open are always together, remain on top of one another, and finally, if you want to change the LCD mode to every 5 seconds — to alternate information during the broadcast and the amount of bytes transmitted.

BUTT can record streams, which is great. Either record continuously or interrupt the recording in determined intervals to avoid creating files that are too large. Record File Name is configured to include the date and time in the name; specify the path to the directory where your file will be saved under Record Directory; and Split file allows you to interrupt the recording every X minutes or Sync to full hour. In the last box mark whether you want the recording to begin automatically from the moment you start broadcasting.

After configuring all the parameters press Save settings, or they will be lost. By pressing Play in BUTT's main window you can now start to broadcast. If the blue display reads Idle, you are not connected. When you connect, it will switch to On Air and Time will start running. In the lower white box it will say Connection established and show the connection parameters.
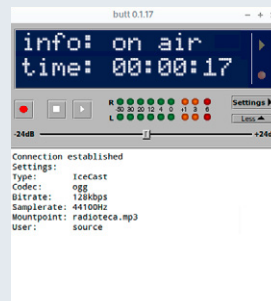
Note: if you don't select Start recording when connected from the Record tab in the configuration menu, you won't start recording until you press the red Rec button in the main window.

© BUTT, GNU GPLv2

© La Radio Salvará al Mundo

Radio 8M

In 2019, Spain's feminist movement called for a strike that led to demonstrations in towns and cities across Spain. In Madrid, the *Comisión 8M* group organized a shortlived online radio program to cover the story that day.

Radio 8M was created with the support of a number of organizations and collectives. *La Ingobernable* and RTVI provided a physical space and internet connection, the *OMC-Villaverde* community radio collective provided the radio equipment, *Radioteca* an Icecast stream for the radio to be heard anywhere, and, to share files, *Ingoberhack* granted access to its Nextcloud instance. It was a broadcast built nearly entirely on free software: Telegram, Etherpad, BUTT, Nextcloud, Audacity, VLC, Archive. org. WhatsApp was only used to receive messages from listeners.

As activist and member of the *Radio 8M* team, Nathalia Sánchez Zumba explains, "going live using only free software added value to the project and all the work we had put into it. It added a level of political coherence to our radio activism, because we effectively worked with tools that counteract the commodification of knowledge".

Listen to and download the entire 2019 broadcast of *Radio 8M* at: **bit.ly/radio8m**.

Mixxx

Developer	RJ Ryan, Owen Williams, Sean Pappalardo y otros
Licence	GNU GPLv2
Website	mixxx.org
Platform	GNU/Linux, Windows, macOS
Price	For free
Languages	English, Spanish, others

There are two main types of programs to play music on radios. There is automation software that, as the name says, is used to automate broadcasting. They are programmed so that at a defined moment the software will automatically—without human aid—announce the time, play an advertisement or connect to an online radio. Then it will return to playing the playlist and wait for the next segment. The second type of software are music players, far simpler programs that do not permit automization and are generally used for live programs.

For both types of programs, free software options exist. G-Radio and Rivendell are examples for free automation software. The group of players is larger. The most recommended one is VLC, a software capable of playing all multimedia file formats, whether audio or video. Alternatives include Audacious, Rhythmbox, Banshee and Amarok (for distributions with KDE).

Yet many radios, in particular those that only broadcast over the internet, prefer DJ-like programs. Mixx is one such player and features two windows for playing tracks, a crossfader and various effects. It offers all the tools you need for a real live music show.

The first time you open Mixx after installing it (in GNU/Linux it will be in the repository, in Windows and macOS you will have to download the executable files from the website), Mixx will ask you, where your music is saved. All your tracks are then preloaded in the program and will appear as a list in the panel on the lower right-hand side. You can now play tracks in any of the decks—here there is one track loaded in the left deck—mix the tracks, quickly switch from one track to another, without gaps between tracks, equalize the sound, etc.

© Mixxx, GNU GPLv2

From the screenshot, it's clear that this is a very complete program—just take one look at all the configurable parameters—and it's worth the effort studying the tool in-depth to make full use of its potential. The official Mixx manuals are available in a number of languages, among them English and Spanish.[22]

One of the most interesting features of this program is that it can automatically connect and begin streaming the audio signal online. Configure this under Options/Preferences/Live Broadcasting.

© Mixxx, GNU GPLv2
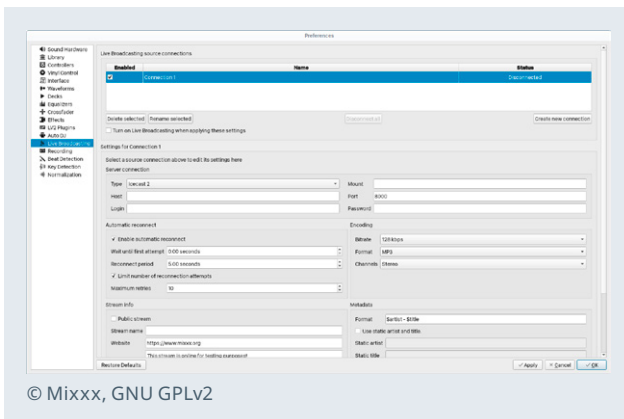
Add the settings of your streaming provider under "Server connection". The server address goes without "http://" or "https://". In the identification field, if you are using Icecast, put in the default user: source. Configure streaming quality, format and channels under "Encoding".

Live broadcasting configuration also allows you to "Turn on Live Broadcasting when applying these settings", also activate automatic re-connection shoud your stream disconnect, and complete the information on the stream (like BUTT) by adding a stream name, website, etc. Save the changes by pressing "Apply".

[22] https://bit.ly/mixxx_es

After adjusting the configuration parameters and configuring the playlist, the stream will begin. In the menu on the upper right-hand side, click on the satellite antenna icon. You can also record the stream by pressing on the cassette icon.

© Mixxx, GNU GPLv2
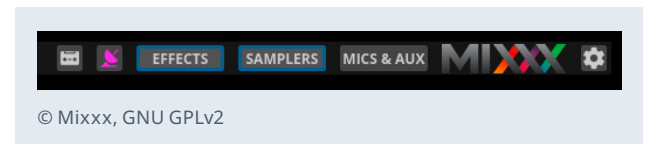
Libretime

Developer	Libretime community
Licence	GNU GPLv3
Website	libretime.org
Platform	Web
Price	For free
Languages	English, Spanish, others

Libretime is free radio broadcast automation software that you install on a server. Access the Libretime control panel through a web browser. It is a kind of advanced AutoDJ. As it is installed on a server, it allows you to relocate the broadcasting process, without the need for a central studio. This means that you can control the program and broadcast from anywhere—which is particularly important within the context of social distancing.

© Libretime, GNU GPLv3
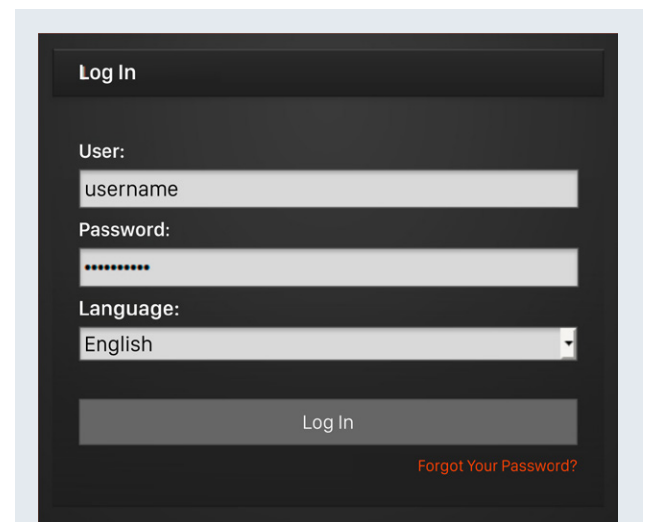
Libretime manages audio files and the corresponding metadata, programs segments with intelligence tools, establishes connections with other stream sources to re-transmit them, analyzes audio levels, sends the stream signal to a FM or DAB broadcaster or another stream, saves a copy of all streamed audios, etc. When you open the dashboard interface, you will see all the broadcast information at the top, on the left, you will see the general menu and then two panels: on the left side, the list of audios that are being played and on the right side, a list of scheduled tracks.

© Libretime, GNU GPLv3

Installing Libretime is simple, but it does require a certain level of system administration skills. Still, Libretime is a powerful automation platform for traditional and online radios, because it also allows you to install a streaming server — Icecast or Shoutcast. Finding someone who can help your radio install Libretime, or taking the time to learn to do it yourself is well worth the time.

There are of course also organizations that offer Libretime as a service on their servers. When you sign up for a streaming point at numerica.cl this comes with a Libretime installation.

4.4. Web streaming players

After starting your broadcast, check to make sure your audience can actually hear you. There are various ways of doing this: either through the radio's website, directly on the stream server, or through browser or audio players like VLC. In all of these cases, the first thing you will need is the URL of the stream. The URL consists of a set of elements, which depend on the kind of streaming service you have and the version you are using: Shoutcast1, Shoutcast2, Icecast1 or Icecast2. The URLs will look like this:

– **Shoutcast1:** stream.provider:8000
– **Shoutcast2:** stream.provider:8000/livestream
– **Icecast1:** stream.provider:8000/miradio.ogg
– **Icecast2:** stream.provider:8000/miradio

The address can have a domain or be an IP address, the port comes after the colon, and, in the case of Icecast, the mounting point with the corresponding extension. As you can see, Shoutcast2 and Icecast2 URLs are similar because they have a mounting point without an extension. Just copy this address into your browser's address bar, and you should be able to listen to the radio. A player will open in the center. Or, in VLC, copy the address and paste under "Media/Open Network Stream…".

If, however, you prefer to embed the browser on a website the best is to do this through a HTML5 code using the tag <audio> where you can add the radio address:

<audio controls>
    <source src="stream.proveedor:8000/miradio"
    type="**audio/ogg**">
    Your browser does not support the audio.
</audio>

This language allows you to add attributes and expand the player's functions. Attributes are words that modify the <audio> tag. In the example, the attribute controls adds play and pause buttons, as well as volume control. If we use autoplay, the audio will play automatically once we load the site.

Chrome introduced security updates in 2020 that prevent you from loading non SSL/TLS certified content, which the browser identifies through the "s" in https://, because it considers such content as insecure. Most streaming servers are beginning to incorporate these certificates, but not all of them have them. As a consequence, if the address of the stream begins simply with http://, chrome will block the content. It is only a matter of time before all providers will begin offering SSL/TLS certified streaming services.

All websites allow you to create HTML widgets or to switch to text/HTML mode when making a page or post. Remember not to paste into the **"visual mode"** tab because the page will then assume that this is text and not code.

If you use Wordpress' free blog service, to embed the HTML player you will need to use the blog's post tags . If the mounting point does not have an extension (.mp3 or .ogg) add hash (#) like in this example:

[audio source="stream.proveedor:8000/miradio#.ogg"]
[/audio]

To embed the player in Facebook you will need to install an app to create HTML content. You can find a detailed description of how to embed an HTML player, depending on the features of your streaming server, at Radios Libres.net.[23]

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[23] https://bit.ly/html5Chrome

4.5. Video broadcasts for online conferences

Radios communicate through sound: words, music, sound effects, noises; even through silence! An ever greater set of digital tools have led to an increasing presence of radio on new types of platforms: websites, social media apps, videos, forums etc. Free online video conference apps have enabled radios to develop new communication formats to reach out to their audiences and use them to promote new releases, organize online trainings, and broadcast discussions and roundtables, etc.

Certainly, there are platforms like **restream.io** that, in spite of some restrictions, allow users to broadcast using their free versions and simultaneously stream content across various social media platforms. Yet, Jitsi, the video call platform described above, combined with a simple YouTube account and channel, allows users to stream conversations over YouTube and embed those calls on their radio's website. On your YouTube channel simply select the camera icon with the sign '+' and then 'Go Live' from the menu in the upper right-hand corner.
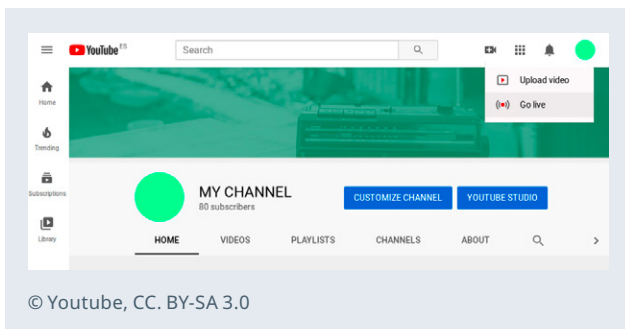
© Youtube, CC. BY-SA 3.0

A window to configure your live stream event opens. Add a title, set your video as public or private, insert a description, a category and, if you want, schedule your stream for a later date, add a picture and (legally bindingly) select if your content is acceptable for children.
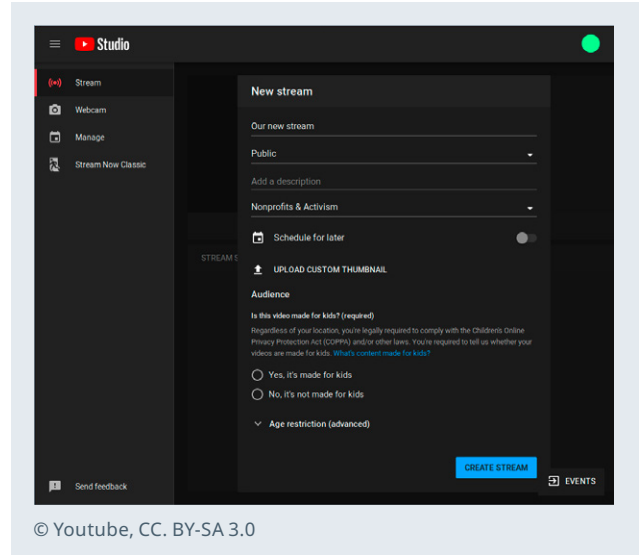
© Youtube, CC. BY-SA 3.0

Once you initiate your livestream event, a control panel to configure your videoconference will open. The most important piece of data is the key for your stream that YouTube will auto-generate for you. Using this key you can connect and stream your conversation on Jitsi.
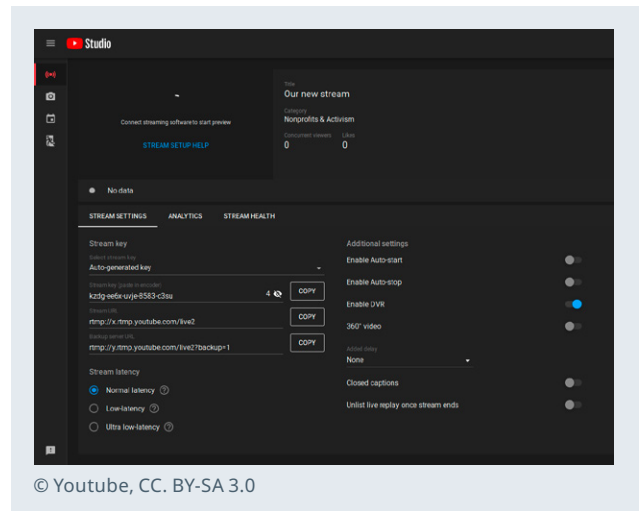
© Youtube, CC. BY-SA 3.0

Select 'Start a live stream' from the 'More actions' icon in the lower right corner of your Jitsi conversation. A window will open where you can enter your YouTube live streaming key. Then click on the blue icon 'Start live stream'.

© Jitsi, Apache 2.0
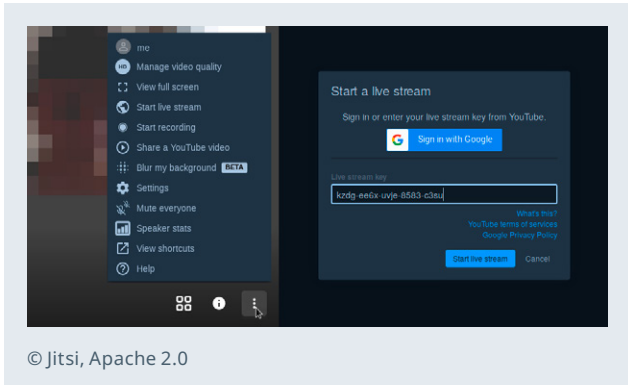
If everything goes well—sometimes YouTube's streaming channels are full and you will have to try several times—you will see in the lower left-hand corner that your stream has started. Now go back to your YouTube channel, where you should see the preview of your Jitsi conversation. As soon as you are ready, press the blue button 'Go live'. There is a chat window on the right side of the screen, where you can chat with your audience on YouTube.

To share the stream and get a link to insert in a web browser, press 'Share' (the icon with the arrow) and a menu with all options will open. To finish, press 'End stream' and your video will be saved automatically to your YouTube channel.

© Youtube, CC. BY-SA 3.0
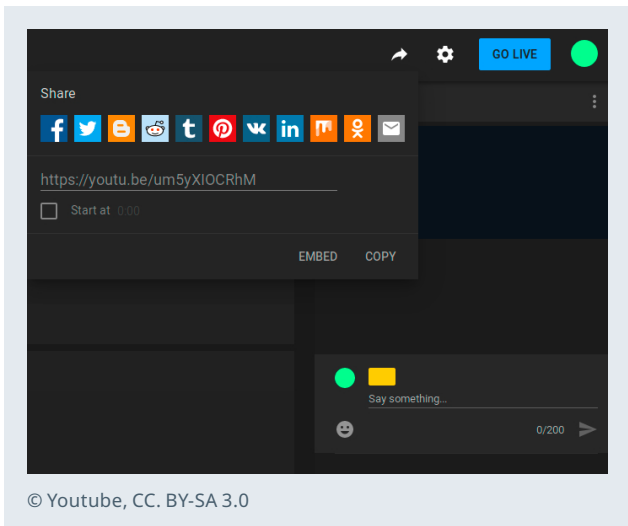
A community radio presenter at work for Radio Sucumbíos in Nueva Loja, Ecuador.

5. Dissemination and promotion
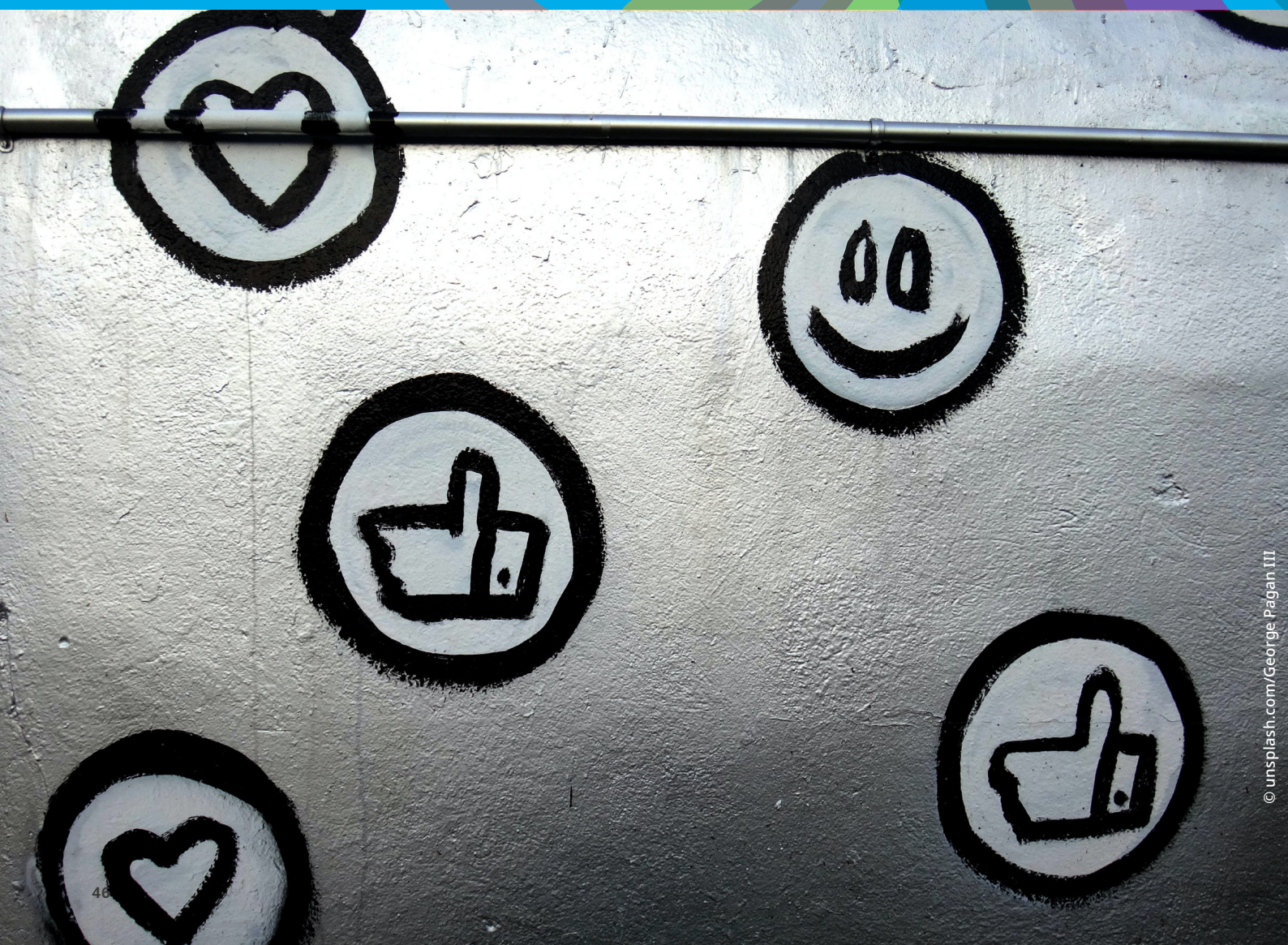
For radios, the proliferation of digital social media has provided more than simply the opportunity to communicate directly with their audiences. The developments have additionally forced them to analyze the potential these new media hold for the processes of community communication. Formats, dissemination strategies, games, slogans to promote interaction with the program, and new forms of spreading news were developed. Radios soon had their Facebook, Twitter and Instagram accounts and began receiving likes. The notable gain in relevance radios achieved through these networks, in some cases meant that, they began limiting their online presence to these digital platforms and drifted away from their websites and blogs.

What at first seemed like a game—disseminating messages through social media networks functions very similarly to how people use these sites privately for entertainment –, for radios it soon became a task that required expertise, time and dedication. And also money! The spreading of promotional content-based business models meant that having a relevant impact without a related cost became increasingly difficult. Horizontal and democratic structures gave way to competition, centralization and arbitrariness in deciding on what would appear in user newsfeeds.

In the face of this concentration of social media, many radios began migrating to *fediverse*, a federated universe of distributed social networks. Alternative social networks that, unlike proprietary networks, do not depend on the central server of a company, but consist of a series of connected autonomous servers that communicate with one another. They can even connect to other servers that use other types of federative social networks.

Such a configuration creates a network in which nobody has absolute control. To the contrary, each server imposes its own rules—on the kind of content that is allowed, the types of acceptable accounts, restrictions etc.—and users are free to choose the server that best fits their needs. Mastodon, Friendica, GNU Social, Hubzilla, Pleroma, Peertube—for videos—or WriteFreely are different types of social network software that radios can install on their server or use via a number of public instances. While the rationale for publication is very similar to the social networks we are already familiar with, the underlying structure is very different because it democratizes both the infrastructure and decision-making.

Who uses these networks? The reality is that the number of people who use these media remains small, yet the quality of interactions are much greater. In any case, the idea is not to abandon commercial social media, but to gradually begin to also populate theses autonomous digital spaces.

5.1. Mastodon

Developer	Eugen Rochko
Licence	AGPLv3
Website	joinmastodon.org
Platform	Web
Price	For free
Languages	English, Spanish, Portuguese

Mastodon is a free and federated micro-publication social network that was created as an alternative to Twitter in 2016. Since it is free software, its code is available at Github, which means that anyone can install the program on their server. You can build private social networks—for example for an organization or group—or you can allow anyone to sign up. This way, if you don't have a server, there are public instances where you can sign up for a public account.

The Mastodon user experience is pretty similar to Twitter. You can create accounts with a name, biography and profile photo; publish short messages with multimedia content (called *toots*); follow accounts; mark messages as favorites and forward (*retoot*) messages; use tags to organize messages and follow topics; make lists depending on your interest, or filter messages for keywords to protect yourself against offensive content. Unlike the proprietary alternatives, Mastodon users can read messages in the accounts of other instances, decide on the privacy settings of each toot individually, or select to only show toots in selected languages.

© Mastodon, AGPLv3

© Mastodon, AGPLv3

You can use Mastodon either through the browser or phone and desktop applications. Hyperspace and The Desk are cross platform; Tootle (GNU/Linux); Mammoth (Windows); Whalebird and Mast (MacOS); Tusky and Suwaytooter (Android); Mast and Mercury (iOS).

If you don't want to abandon proprietary social media, because you have already built a community there, there are applications to connect both types of platforms. Anything your radio toots in the fedirverse will then also be tweeted over your Twitter account. Applications that offer this option include, for example, Moa[25] and IFTTT[26].

[25] https://bit.ly/Moa-Party
[26] https://bit.ly/IFTTT-Mastodon

To sign up you will first need to choose an instance.[24] Go to your selected site and complete the form by providing your name, email address and password. In some instances this step is automated, others will require you to send a request by email and explain what you plan on doing. Confirm your email address and you are all set, the account has been created and you can start connecting to other people and publishing. It is always a good idea to get to know the interface the first time you connect with the platform, explore the settings, and adapt the privacy and security parameters.

The interface is organized in columns. In the first is the settings menu, the search bar and the window to publish (toot). The second one lists the account you are following. The third column shows the publications of the local instance. And, in the next one, the federated news feed, i.e. all your fediverse messages. The last column shows your private menu with favorites, direct messages and lists.

[24] A list of options is available here: https://instances.social/

Artificial intelligence, social media and the polarization of public discourse

Algorithms are a set of instructions that automate decision-making processes based on a set of inputs. In the case of digital platforms, inputs take the form of: likes, postings, configuration parameters, or the accounts that users follow. Such data serves to increase the precision of targeted advertisements or music suggestions. Yet, the same data is also used to calculate health or life insurance premiums, who to deny access to an overbooked flight, or whether it makes sense to employ someone who might become pregnant. Amazon had to publicly apologize after it became known that the company's recruiting algorithms penalized matters related to women's careers — such as maternity leaves.[27] Artificial intelligence automates decisions

[27] Rubio, I. (October 12, 2019). Amazon prescinde de una inteligencia artificial de reclutamiento por discriminar a las mujeres. El País. https://bit.ly/amznai2018

that have tangible effects on the lives of citizens.

Every piece of data that people provide allows these algorithms to generate more precise answers. Personalization takes place at such a detailed level that the internet each person uses ends up being completely different to the internet used by everyone else, leading to the creation of so-called filter bubbles and echo chambers. Thanks to these algorithms people are fed only information that reinforces the beliefs they already hold and prevents them from becoming exposed to opposing views. The Cambridge Analytica[28] scandal revealed how easy it is to spread false and malicious content to a micro-segmented audience. The result is a polarization of public discourse, with severe consequences for democracy around the world.

The question then is, who is responsible for these decisions? Who do we hold accountable when rights are violated? Can we prosecute machines and algorithms? Are developers responsible for the inputs of their algorithms? This is without doubt a complex debate. As a matter of principle, we need to demand transparency and compliance with strict ethical standards in the development of algorithms and privacy protection.[29]
Community radios are challenged with questioning the discourse that upholds a stance of technological neutrality. They must denounce the abuse of power and make it visible and pressure developers to adopt human rights standards on their teams, products and services. They must bring these debates to society because even though they may seem far off, they influence people in their most intimate and daily decisions in more ways than you can imagine. Algorithms might even be deciding the song to listen to to help you mend your broken heart.

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[28] Töniges, S. (April 10, 2018, abril 10). Lo que debe saber sobre el escándalo de Facebook. Deutsche Welle. https://p.dw.com/p/2vnkg
[29] Deutsche Welle (May 21, 2020). Do ethics and algorithms go together? Deutsche Welle. https://p.dw.com/p/3PAIk

Strategies

From the first community radios to the post-pandemic phase, the radio environment has undergone considerable change. During all of these years, community radios have felt obliged to continuously reflect on their communicative mission. This pertains not only to their audiences and the communities these radios are embedded in, but also to the relationship between community radios and the larger media landscape: newspapers, television and, in particular, the internet. The 'new normal' phase now calls for further reflections.

This section identifies a number of strategic challenges for community radios and media that are worth exploring to remain relevant in the post-pandemic information environment. Points worth considering should include at least (1) promoting communication rights in a digital world; (2) opting for autonomous communication infrastructures; (3) strengthening quality journalism to confront information disorder; (4) encouraging open access to information and data; (5) stimulating a grassroots agenda that gives scope to new narratives and subjects; (6) expanding audiences and increasing participation to achieve truly participatory programs; (7) adopting innovation as a daily practice and garnering the capacity to react flexibly to change; (8) using the expressive potential of spoken words and sounds; (9) enhancing open source-based collaborative forms of working through networks that strengthen the investigative capabilities of radios; and (10) exploring new models of sustainability.

Clearly, many of these strategies intersect: innovation can be applied to the exploration of the aesthetics of sound, and increasing audience participation is a prerequisite to strengthening the long term viability of radios. This points to the need for a comprehensive strategy capable of defining a space in the post-pandemic environment that does not leave out any of the important dimensions of politics and communication. Obviously, these ten ideas are still far from allowing us to comprehensively frame the strategic challenges that we face.

Each of these challenges was identified based on experiences that radios and networks have had and reveal possible strategies to deal with these issues. Every context is unique and every radio has its own reality. Take this as an invitation to creatively assess how to strengthen community communication and remind ourselves of why we are involved in what we do.

This moment calls on us to build relationships of trust through quality journalism, working towards social justice and positioning community radios as a solid alternative, opposing misinformation and a discourse of hate.

1. Promoting communication rights in a digital world

Being a broad concept, a number of fundamental rights such as: the right to freedom of expression and opinion, freedom of press, access to information, the right to culture and education, the right to privacy and freedom to communicate and the right of association are all intrinsically tied to the right to communicate.

The right to communicate is key in guaranteeing these rights and is not exclusively a right held by the media, but a right held by every single individual. Citizens, thus, are seen as active subjects of communication and not merely as passive recipients of information.

Community media have played a central role in promoting and defending the right to communicate. They have upheld this right in the name of grassroots organizations, defended it against the state, and taken part in international committees and global forums. The defense of the right to communicate involves the acknowledgment of community media — in countries whose legal frameworks only recognize private and public media —, provision of access to and reserving of airwave frequencies and development of policies and programs that promote community communication.

This banner served to adopt new communication legislation, which, despite its shortcomings, recognized the value of plurality. Without media plurality and diversity there are no opposing points of view, a single discourse becomes the norm and, as a consequence, weakens the democratic system. For this reason, as the radio spectrum is a limited resource, the state must seek to actively promote plurality when assigning the available frequencies.

With the increasing pervasiveness of communications technologies, broadcasting options became diversified. We left scarcity behind. Anyone with an internet connection and a computer could take part on equal terms in what was dubbed the *connected public space*. A new wave of democratization of communication was welcomed.

Community radios enthusiastically embraced the opportunity to broaden their reach: they began to transmit online through services such as streaming, communicate with listeners through social media and upload their programming to their websites. They also had access to journalistic information, could contact relevant sources directly and strengthen their ties with their audiences. They began to inhabit a new digital territory, rapidly learning its rules and limitations.

Gradually, it became clearer that the major concerns regarding communication were not being resolved, rather they were simply transforming. Hate speech as a discourse on social media, the digital divide, algorithm biases and filter bubbles, the concentration of platforms, the spreading of fake news and information disorder, promotional content, censorship, the right to be forgotten, online misogynist violence or the infringement of privacy rights, were no more than new manifestations of communication's old and well-known problems. Digital technologies were not per se part of the solution, rather, they obliged community radios to continue upholding the right to communicate; but this time, in the digital sphere.

Today's digital environment is very different from the internet that was built on values such as openness, decentralization and plurality, which the hacker communities of the 20th century developed. The concentration of platforms, software and of the physical infrastructure reinstate a backdrop of scarcity in an arena where very few players make the rules. These problems are not inherent in the technologies themselves, but owed to private-interest and capitalist values-based models of development. Using tools and practices deeply rooted in and inspired by traditions that seek to defend our right to communicate, it is still very possible to create digital territories capable of breaking the shackles of this logic. Committed to free and open software, this manual hopes to contribute to such a development.
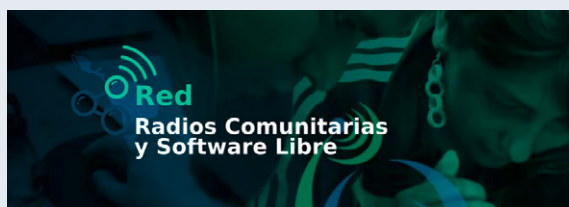
© Red de Radios Comunitarias y Software Libre

Red de Radios Comunitarias y Software Libre

Established in 2013, the *Red de Radios Comunitarias y Software Libre* (RRCySL) network is a community of mutual support between radios that have "freed" themselves. This liberation, for example, consists in "incorporating a philosophy of free communication and digital commons", using free software or content with free licenses. A map of the freed radios that constitute this network is available at bit.ly/radios-liberadas and provides information on each of the radios involved.

One of the most interesting features of this initiative is that they drive the development of their own free software, such as the GNU/Linux Etertics distribution, or the G-Radio automation application. They also count on an active support community to help people who have

decided to migrate to their software.

Radios that wish to take the first steps to transition to free software can download or read the following manual *El software libre en la radio. Migrar la tecnología.*[30] The RRCySL shares tutorials and news on its website **liberaturadio.org** and offers support through its Telegram group **t.me/liberaturadio**.

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[30] Available at: https://bit.ly/manualradioysl.

2. Opting for autonomous telecommunication infrastructures

When the digital communication network was expanded to cover the entire globe, the change occurred under the logic of the earlier networks, which had sought to connect the countries of the Global North and urban centers. Submarine internet cables follow the same logic as telegraph cables, or, for that matter, financial flows. Our global internet network is highly concentrated, both geographically and economically. Large tech companies are privatizing the infrastructure on all levels: by installing submarine fiber optic cables, grabbing Internet Exchange Points that optimize traffic between networks, installing potent data centers, and even incursioning in the last mile as internet providers.

Internet services too are becoming increasingly concentrated: 64% of internet users use Google Chrome[31], 92% use Google's search engine[32], Facebook has 2.5 billion users, and Amazon earned 280 billion dollars in 2019[33].

How does such concentration impact public debate and democracy? It is essential to critically review questions related to the technological infrastructure in functioning societies. Leaving the model of technological development up to just a few players, whether private or public, is a threat to freedom of expression. During quiet times this is a key debate and it is even more so during a crisis such as the Covid-19 pandemic because of the fact that citizens depend on being online.

Community radios are perfectly capable of installing their own digital infrastructure that responds to their needs. Many

already manage web servers or have allied themselves with community organizations to build autonomous internet structures or intranets.

© Karla Velasco, REDES A.C.

Autonomous cellphone networks

Cellphones and internet access are still not generally available for a large part of the population of the Global South. Nonetheless, many municipalities have begun to install telecommunication networks in their administrative regions. If the large corporations do not see connecting them as profitable business, municipalities will take on the challenge by themselves.

In countries such as Mexico, Colombia, Brazil or Argentina, people have installed their own cellphone networks, internet and intranets. Towns and villages provide their expertise and the necessary labor and join forces with organizations with the technological know-how like REDES A.C., Rhizomatica, Colnodo or AlterMundi. Between them they begin a process in which the towns and villages reflect on their communication needs and their ability to address them.[34]

In many cases community radios have played an important role in the processes leading up to the creation of such community networks. Either, because by offering their installations they act as a driving force, or, simply, because they are part of the community and as such, involved in its development. Community-based communication is now broadening the historic demand of community radios to "occupy the radioelectric spectrum".

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[31] StatCounter (2020, abril) Browser Market Share Worldwide. https://bit.ly/browsershr.

[32] StatCounter (2020, abril). Search Engine Market Share World Deutsche Welleide. https://bit.ly/srchengine.

[33] Nasdaq (2020). AMZN Financials. https://bit.ly/amzn-financials.

[34] Deutsche Welle (September 27, 2019). Telefonía indígena - En defensa del derecho a la comunicación. Deutsche Welle (in Spanish). https://bit.ly/telefonia-indigena.

During the Covid-19 pandemic, several Colombian towns and villages were completely isolated. For example, community-based cellphone networks not only allowed the citizens of Maní, Casanare, to stay in contact with their families, but also enabled them to "pay services digitally, get their shopping delivered to their doorsteps and order consumables without having to be in physical contact with other people".[35]

Find further information on Latin American community networks in the face of Covid-19 and the organizations that support these initiatives here: **bit.ly/ Covid19-CommunityNetworks**.

[35] Colnodo (May 14, 2020). Redes inalámbricas comunitarias en Colombia ayudan a mejorar la calidad de vida en época de confinamiento (in Spanish). https://bit.ly/colnodo.

3. Strengthening quality journalism to confront information disorder

Following the 2016 US elections, when it became clear how easy it was to position misleading news and profit from the number of clicks it got, the term *fake news* began to become widely used. While disinformation is by no means a new phenomenon, a business model based on promotional content and personalized algorithms fed to people through social media, has broadened the strategy's reach.

However, information disorder goes deeper than the production and dissemination of fake news. Society is confronting a global pollution of information, "a complex set of motivations to create, disseminate and consume such 'polluted' news; an endless stream of content and technologies to amplify them; innumerous platforms that host and reproduce them; and breakneck speed communication between peers".[36]

Filter bubbles, bots, fake news, echo chambers, micro-segmentation, memes, deep fakes, chains, manipulation, content taken out of context or without presenting opposing views, identity fraud, press operations, rumors, spread of hate speech, stigmatization of minorities, leaks, clickbait, promotional content, trolls, are all part of this complex phenomenon.

[36] Wardle, C., y Derakhshan, H. (2017). Information disorder: Toward an interdisciplinary framework for research and policy making. Council of Europe report, 27, p. 5. https://bit.ly/information-disorder

The Covid-19 crisis was no exception. Social media and messaging groups constantly circulated fake, malicious, erroneous and incorrect content. Had the pandemic been caused because people ate bat soup? Were feminist demonstrations to blame? Had the virus been fabricated by humans? Or was hydroxychloroquine an effective cure? Byte by byte of content created to generate confusion and direct people's hate towards particular groups.

Digital platforms have reported on the terrible consequences this has for public debate and democracy. Since the dirty Brexit campaign, governments and international organizations have urged the large tech companies and social media to take action. Some progress, albeit tentative, has been made: Google and Facebook now show alerts on non-trustworthy news, WhatsApp has limited the number of recipients and times a message can be re-sent and Twitter, for example, has banned political advertisements and warns about abusive content.

Journalists, too, have begun to tackle the phenomenon, for example through dedicated fact checking projects or global consortiums such as The Trust Project[37], which are driven by the desire to guarantee the integrity of information. Community radios have positioned themselves against the phenomenon of information disorder and are working to maintain an ethical commitment to their journalism through trust and proximity with their audiences and their needs.

The post-pandemic context will be no different. In the context of an economic crisis where the available resources will be limited, there will be even less information. It will prove essential to bring forth debates about information disorder and work to be part of the solution. Radios should concentrate their efforts on generating discussions that outweigh polarized positions and provide tools to understand and analyze the current reality. Quality journalism, with its diverse sources, verifiable and contextualized data, will allow radios to generate added value content that will guarantee them a relevant position in the sea of available information.

It is good practice to learn the methodology behind fact checking or associate yourself with projects that do.[38] Or to use radio air time to debunk fake news and hoaxes, carefully taking care to not reproduce debates on the terms proposed by disinformation strategies.

[37] https://thetrustproject.org/
[38] The list of projects in Latin America is availble here (in Spanisch): https://bit.ly/factchckrs.
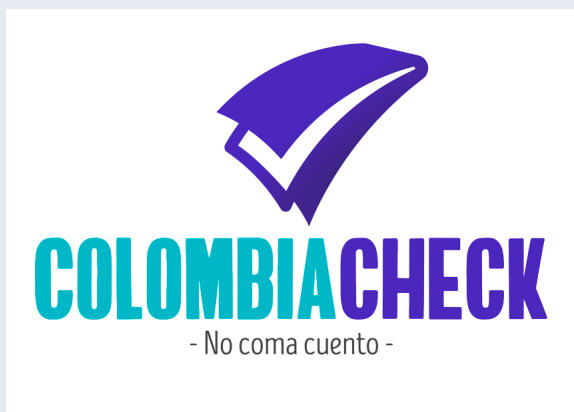
© Colombiacheck

Colombiacheck

Colombiacheck is a fact checking project developed by *Consejo de Redacción* with the support of DW Akademie, which was founded in 2016 and was inspired by the Argentinian site **chequeado.com**. It aims to "strengthen democracy and public debate through impartial, non-partisan, investigative, responsible and ethical journalism".

Its verification system consists in selecting publicly circulating statements, contacting the statement's alleged author, opposing the information that is circulating with official and trustworthy sources, consulting alternative sources and experts, putting the phrase into context and, finally, qualifying it as either true, true but…, doubtable, false or not verifiable.

The Colombiacheck project is part of the International Fact-Checking Network, a unit of the Poynter Institute.[39] This guarantees their commitment to being non-partisan, impartial, transparent about their sources of information, financing and methodology, and, finally, having an open and honest policy in regards to correcting wrong information.

Beyond verifying false and hoax news, Colombiacheck conducts thorough journalistic investigations like *Zoom al billete* (in Spanish), an investigation carried out in 2018 in which they analyzed the people and companies that provided funds to the campaigns of 54 representatives.

Learn more about this project and its methodology of verification here (in Spanish): **colombiacheck.com**.

[39] https://www.poynter.org/ifcn/

4. Encouraging open access to information and data

Controlling those in power is one of journalism's supreme duties. Called their watchdog role, they are to alert and denounce abuses through investigation. Community radios have taken up a mediator and auditor role, which has impelled the grievances of their communities and the social movements that support them.

The enormous amount of data that the digitalization of communication produces can work in favor of community media in this task. Access to public information is a right that more and more nations are guaranteeing through transparency portals, the publication of open data and access requests. Data-centered journalism has used this information for investigations that hold public interest.

In contexts where such data is not easily available, it will be necessary to use other sources of data that are generally more disperse. Ethical hacking, for example, can help locate alternative sources and retrieve relevant information. Approaches can range from asking questions in specialized forums to webscrapping, the automated extraction and downloading of data from a network, or visualizing the complex data from Twitter's API.[40] That way media can detect electoral fraud or analyze how a hate speech discourse is being disseminated through, for example, specific social media accounts.

The pandemic revealed the importance of open data, which was crucial in providing reliable information and rejecting fake stories. Access to scientific information and collaboration was also of supreme importance in the search for a vaccine against Covid-19.[41] Publishers like Jstor expanded the number of freely available scientific articles and journals.[42] It is evident that the sanitary crisis has revealed how the privatization of knowledge has become an obstacle for scientific progress.

The defense of commons, which include public information, digital goods and knowledge, is an ethical challenge in which community radios can play a predominant role. A focus on open knowledge, public domain, copyleft and free licenses generates positive environments for innovation.

[40] https://osintframework.com/

[41] Duarte, C. (April 26, 2020). El virus que despertó la colaboración global. El País (in Spanish). https://bit.ly/open-covid19.

[42] JSTOR (March 13, 2020). JSTOR resources during COVID-19. https://bit.ly/open-jstor.
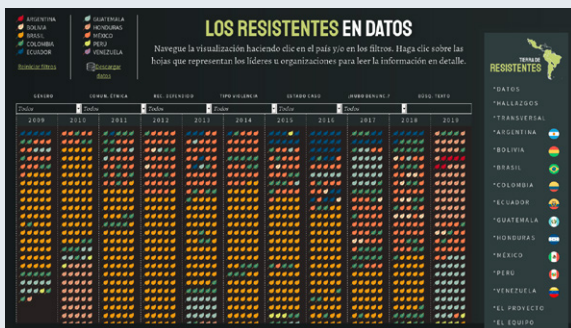
© Tierra de Resistentes

Tierra de Resistentes

Tierra de Resistentes is a special kind of multimedia project that documents the criminalization and violence perpetrated against land rights and environmental activists in Latin America. Journalists, photographers and audiovisual producers from Argentina, Bolivia, Brazil, Colombia, Ecuador, Guatemala, Honduras, Mexico, Peru and Venezuela were invited by the Colombian *Consejo de Redacción* project that receives support from the DW Akademie to develop a collaborative journalism project that has documented 2,367 cases of abuse between 2009 and 2019.

As no specific official data on these cases exists, "each team of journalists used innumerous and diverse sources, including government human rights organizations, social movement organizations (environmental, legal, religious, indigenous and afro-descendant), official records and individual leaders. All of the involved journalists complemented and verified the situation of each leader with journalistic information".

Beyond its database, the project offers reports and video interviews that provide a first person perspective on the violence suffered by the people who have protested against for example extractive and hydroelectric projects, deforestation or drug trafficking.

Discover all of the material from Tierra de Resistentes here (in Spanish): **bit.ly/tierraderesistentes**

5. Stimulating a grassroots agenda

If there is one thing community radios have experience with, it's building alternative information agendas, i.e. identifying, accompanying and telling the stories that go unnoticed by the mass media. Stories from everyday life can speak to larger social processes from a much closer, people-centered perspective. A nurse from Iquitos can say a lot about the shortcomings of the healthcare system, just as a fruit seller from Guatemala City can tell us a lot about the economic impact of Covid-19. The voices of experts are important, but the voices of ordinary people are equally important because they speak from the perspective of their own experiences.

To acquire these perspectives it is important to remain open and ready to seek stories in unexpected places. You can do this by leaving the studio to search for people who can provide new points of view, experiences and life stories. Such training is not achieved overnight. Citizen journalism networks that allow the sharing of information can be a good starting point. Another good option is to seek the support of grassroots organizations and projects that work consistently to meet the needs of the most marginalized sectors of society.

It can even be a good practice to involve audiences in identifying issues worth investigating, the problems that concern them and the problems that would otherwise go unseen. You can open channels for listeners to propose questions and for the radio to offer its journalistic potential to investigate, analyze and turn them into broadcast information. You can also install sub-sites like GlobalLeaks [43] which is not only free software, but it also actively protects the identity of those seeking to disclose sensitive information.

A grassroots agenda implies putting the focus on the people that are the subjects in the news: those who manage columns and columnists need to decide, which experts they will invite to comment, who are the sources, which voices to amplify and which ones to silence. It would be interesting for radios to monitor the people they air and maximize the diversity of these voices so that there are women and girls, adolescents, adults, elderly people, people from indigenous communities, afro-descendants, people with diverse ability levels, non-conforming genders and LGBTIQ+ and that all those groups categorized as "minority" gain a voice. Numerous programs and observatories already monitor how the presence of women and the reproduction of stereotypes in the news is evolving and these programs can be consulted as a resource when developing the radio program schedule from a rights perspective.[44]

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[43] https://www.globaleaks.org/es/

[44] Global Media Monitoring
Project http://whomakesthenews.org/gmmp

© Vokaribe

Vokaribe Radio

Vokaribe is a community radio from the southwest of Baranquilla, Colombia, which, with the support of DW Akademie, actively seeks to increase the inclusion of marginalized populations through radio communication, strategically improving peoples' lives.

Due to social imaginaries "that classify this and other zones of the city as 'marginal', and thus provoke (...) collective social rejection," the southwest neighborhoods of Baranquilla suffer constant discrimination because people associate them with violence, poverty, drugs and crime. *Vokaribe Radio* constantly seeks out the stories of those who live on the margins of society. Two projects highlight their approach: *Informativo Vokaribe a la calle*—heir to the *90MinutosDeRadioALaCalle project and*—*Reporteratones*.

Informativo Vokaribe a la calle is a live program which is produced in the poor neighborhoods. It was designed to "make the diversity of local cultures and the work of the leaders and organizations that created and continue to create this landscape visible." The program seeks to broadcast the interests of these neighborhoods and to be close to the residents in order to build a network of community reporters.

Currently, through the *InformativoVokaribe*, *LaJuntaResponde* and *LaJunta* programs, grassroots organizations on the ground and others who make up the radio's program board, allow for *Vokaribe's* presence in these neighborhoods and ensure that people's most urgent needs remain on the agenda.

On the other hand, the *Reporteratones* are workdays of "express reporting", encounters and reflection, designed to "motivate people, communities and social movements to speak about their realities and stories with their own voices, using the communication resources available to them." The encounters—now already in their third round—include debates, talks and workshops between journalists, communicators and people associated with the radio. Learn more about Vokaribe and their projects here (in Spanish): **vokaribe.net**.

6. Expanding audiences and increasing participation

Ensuring audience participation is a constitutive element of community radios. These radios have always aimed to offer microphones to the community and keep their doors open so that people would feel that the radio was theirs. Today, the spread of digital tools and platforms has led listeners to occupy active roles that go far beyond simply consuming radio content. Phone calls, text messages and slogans in social media are good, but not enough.

Participation of certain groups in some cases proves difficult, obliging radios to go out and look for these groups at markets, popular festivals, sports stadiums or schools. This is how Sónica 106.9 works, a Guatemalan radio directed at young people, which has received support from the DW Akademie and has adopted this particular strategy. They designed a mobile studio that they take to schools so that students can participate in recreational activities and media and information literacy projects[45] and go on air. The mobile studio has not only increased the participation by young people on the radio, but it has also positively affected their rating.

Other radios are also closely tied to the social fabric of the neighborhoods and towns they work in. When social organizations, mutual aid groups, popular movements, neighborhood associations and grassroots businesses feel that in part the radio is theirs, not only to disseminate but also to push their agenda, they will become more actively involved in the radio project.

Another idea could be a network of migrant reporters from different parts of the world who broadcast the voices of people who had to migrate. Or radios could initiate a collaborative document to gather and list all of the issues that require the mayor's attention. Or the radio could organize a festival at the beginning of a year in order to invite everybody to generate ideas for the radio program and even motivate people to develop their own programs.

Lockdown has shown that decentralizing production, broadcasting, and the studios themselves can in fact be done. In the post-pandemic new normal, whether or not lockdowns will happen more regularly is unpredictable, but digital technologies can bolster participatory processes: instant messaging, networks, shared clouds, voice over IP, videoconferences, pads and all kinds of other platforms. Traditional means like the post mail, bulletin boards in places frequented by many people, or phone calls can also be tools. There are unlimited resources that allow radios to increase participation by understanding their audience, using creativity, and making only a small investment.

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45 Braesel, S., y Karg, T. (2018). Alfabetización Mediática e Informacional—Una guía práctica para capacitadores. Deutsche Welle (in Spanish). https://p.dw.com/p/3989T.

© Hammam Radio

Hammam Radio

Hammam Radio is a feminist online radio created in Berlin at the end of March 2020 as an answer to the generalized anxiety provoked by the Covid-19 lockdown crisis. The initiative emerged as an expansion of already existing projects: Hammam Talks, a monthly discussion series between women on diverse subjects and Al Hay Radio, a Beirut-based online radio.

One of the most interesting aspects of this radio is its highly participatory approach. On its website, Radio Hammam publicly shares its calendar with the entire program for the coming weeks and the slots open to those willing to contribute. To become part of the project and broadcast a program you simply need to fill out the form and explain what you are going to talk about. Once Radio Hammam has accepted your request, you receive the settings to begin streaming from any part of the world. This way they de-centrally fill their program which already covers a great diversity of issues in numerous languages. There are programs in Arabic, English, French and other languages.

Access the program at **bit.ly/2MffEX3** or contact the project by writing to **hammamradio@gmail.com**.

7.   Adopting innovation as a daily practice

The idea that innovation is a thing for large advanced laboratories or media labs with multi-million dollar budgets is firmly anchored to our collective imaginary. When, in fact, innovation is not more than a methodology that creatively seeks to find new solutions to solve problems. Instead of doing things always the same well-known way, innovation invites us to explore alternative approaches to reach our goals. It is not something you do once, but a permanent practice of expanding the range of possible solutions. This is what we call "thinking outside of the box", an attempt to leave well-trodden paths.

Community radios were disruptive from the outset, because they broke up the function that traditional media had had up until that point. Their innovative proposals positioned them at the vanguard of media. They developed literacy distance learning programs, produced radio dramas and series with social aims, made programs with radio transmitters on donkeys' backs, organized enslaved workers to form unions, installed satellite communication or short wave networks, broadcasted from boats to circumvent legal restrictions, or used fence wires to transmit their signals.

The post-pandemic scenario is an opportunity to capitalize on this history of innovation and take the lead again. Copying the approaches of traditional media, who do the same work but with far greater resources, cannot be the way. We will have to adopt innovation as the force that guides all processes on the radio: equipment management, identification of stories, participation by the audience and sound identity.

Yet, we must not be naive. Innovation requires effort and resources, even if these are not necessarily financial. Involving a lot of people is a good idea. And even though the best ideas usually come under unexpected circumstances, we can generate favorable environments and methodologies. This is not about innovation for innovation's sake, but innovation to build a radio that calls on and accompanies its audience and discusses questions with them. Creative labs are strategic assets that help broaden participation and ensure that participation does not limit itself to sending messages or talking on the air, incorporating it into the design of the radio program.

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CoLaboratorio by CEPRA

CoLaboratorio is a methodology developed by CEPRA and DW Akademie that consists in bringing together people from different fields in experimental environments to conduct diagnoses of participatory communication. The aim is to facilitate processes of innovation at radios that allow them to adopt new practices and formats that strengthen community communication.

Through workshops called *Ideatones*, radios and their communities become actively involved in the diagnosis using legos, models, stickers, posters and cards to make the innovation process more accessible. The method has helped community radios in Bolivia to find new formats by which programs could respond to the needs of their audience; they designed strategies to take advantage of digital technologies and implemented mechanisms to deepen the analytic capabilities of communicators regarding strategic questions such as the environment or gender violence.

According to Marlene Colque, from the town of Caranavi, who took part in one such *Ideatón* brainstorming session, the challenge rests in "understanding people's needs, providing them with corresponding and concrete information and seeking strategies to find ways to disseminate this information to each person".

Detailed information on the methodology and findings of participatory diagnostics are available here (in Spanish) **ceprabolivia.org/blog/colaboratorio**.

8. Using the expressive potential of sound

If there is one thing that radio listeners have gotten used to, it is that radio programs consist of people speaking in between music and advertisements. Just as true in journalism as it is in entertainment, the spoken word is the norm. And the truth is that words are potent when you want to communicate. But we must not forget sound effects, noises, sounds of the environment and even silences are part of radio language. A shrill noise, a heartbreaking sound or silence, too, at the right moment, can transmit a feeling more effectively than a word.

Sound has an expressive and narrative potential which becomes an opportunity for creation and communication. Harnessing this power can widen a radio's scope of action and impact. In the new era following the pandemic, during which we will need to calm anxieties, build community and invent a new world, using this option appears even more attractive. It is time to assert the radio as the media of imagination. Just like books, there is no way our stories will not end up being built with the different elements that have been contributed by each listener. Radios know how to invent worlds. With just a few elements they transport audiences onto a boat crossing the Mediterranean or a steel factory that is about to close. Immersion journalism allows you to travel to the places where events are unfolding by creating atmospheres or by registering all the sounds at a specific place.

Very likely, a gap exists between the intentions of a program and how the audience understands it. But, to the degree sounds are used deliberately, that is, thinking which to use when, how and why they are being used, broaden the possibilities of generating creative content that appeals to the imagination. To the extent this potential is understood and used, radios will be able to attain more innovative, moving, and original programs than radios in which sounds merely ornament spoken words.

Sound documentaries and soundscapes are hybrid and flexible forms in which "unlike other forms of radio journalism, special emphasis is put on the narrative functions of sound and the aesthetics of content".[46] Collaborating with the *Foro de Documental Sonoro en Español* (SONODOC) forum could be an enriching environment to explore these formats.

Experimenting with sound and radio art are also interesting genres to communicate from different spaces that transcend the spoken word. This is not necessarily about making conceptual 15 hour noise collages. Effects can be combined to set the scene for interviews or reports, radios can even record their own effects and gradually create their own effects bank.

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[46] Godinez Galay, F. (2019) ¿De qué hablamos cuando hablamos de documental sonoro? (in Spanish) https://bit.ly/docusonoro.
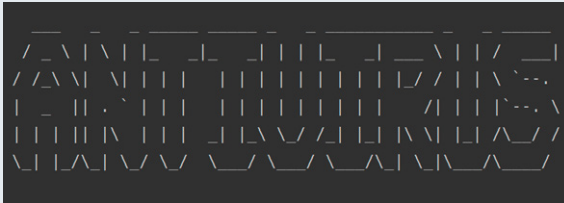
© Radio ANTIVIRUS

Domestic Noise at Radio ANTIVIRUS

Radio ANTIVIRUS is a participatory program by French radio Π Node that emerged at the height of the Covid-19 crisis and "spreads through the network of electric cables to convert this moment of struggle against the virus into a translocal radiophonic struggle." During lockdown, they opened their stream for anyone to broadcast. To take part, you reserve a slot in the schedule, the radio sends you the mounting point, and you begin streaming from wherever you are at the scheduled moment. Over 100 people took part in the initiative.

One of its programs, *Domestic Noise*, calls on people in lockdown to connect at a particular moment and stream noises of household appliances from their homes: washing machines, blenders, mixers, fridges. Anything that makes noise. Sarah Brown, a member of the Π Node collective, then mixes all of these inputs into a final piece of radio art and broadcasts it on Radio ANTIVIRUS. *Domestic Noise*, as Brown explains, "is a way of playing with your daily environment during a tense situation. It allows us to creatively express feelings at a moment when the whole world is talking about survival."

What do household appliances say about lockdown? How does the noise of a blender speak about the lives of the people that switch it on every morning? Brown loves the sound and she thought it would be good to hear it on its own. As she adds, "the noise of appliances affect us every day. As we are forced to stay at home, I thought about the possibilities these machines offered as a means of expression that reveal the diversity and richness of the people taking part."

Find more information on Radio ANTIVIRUS, listen to the stream and archive material here: **bit.ly/pi-node**.

9. Enhancing open source-based collaborative forms of working through networks

During recent years journalists from around the world have conducted investigations that have required great efforts to process data and information. The Internacional Consortium of Investigative Journalist[47], for example, shed light on such important cases as Odebrecht or the Panama Papers. These were investigations with global repercussions in which various journalists each were dedicated to specific aspects of the story, and their media then published the entire story. Thanks to this methodology they were able to conduct complex investigations that would have exceeded the possibilities of any single team.

For community radios, collaboration has been an opportunity to expand the reach of their journalistic output through ties to different parts of the continent. Regional community radio networks have used news agencies and radio news programs such as *Pulsar or Contacto Sur* who have correspondents in the region to spread local testimonies and experiences. Alternative media networks exist across Latin America and they, for example, jointly organize journalistic coverage, radio news programs, training programs or share content and sources.

Managing the pandemic pushed teams in all areas to telework collaboratively, practices that could be strengthened even more by establishing permanent sharing networks, connecting community projects in different parts of the world, conducting decentralized journalistic investigations and organizing joint broadcasts.

Licenses that allow people to share freely facilitate such processes. People can use a variety of Creative Commons licenses, explore peer production, or, even use the feminist peer production licenses *Producción Feminista de Pares*.[48]

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[47] https://www.icij.org/
[48] https://labekka.red/licencia-f2f/

© Laboratorio Popular de Medios Libres, CC 4.0 BY-NC-ND

Cadenazo Radial

The Cadenazo Radial: Salud y Vida de Todxs series was an initiative that summoned free media, community radios, journalists and independent collectives from Latin America to unite and jointly broadcast a radio program to "join forces and communicate to society measures and ways for communities to resist Covid-19." Radios from Argentina, Chile, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, Panama and the Wallmapu took part.

The *cadenazo* was a joint broadcast from different parts of the world using a single stream hosted by the free Espora server. The decentral radio program featured uninterrupted broadcasts for up to 14 hours.

The initiative grew, giving way to over 10 such radio *cadenazos,* with free radios from Italy and Spain also joining in. The call to participate was such a success that on May 10 the first *cadenazo* of free radios from the Iberian Peninsula was organized. 14 Spanish radios jointly broadcasted a program on the impacts of Covid-19 measures on Spain's working classes. For Marta López of *Radio Vallekas*, the Iberian *cadenazo* became "a collage of highly political programs on Covid-19 in defence of

social justice from multiple perspectives." Yet, as she adds, "the challenge remains to increase participation by women and queer people in community radios."

Find further information on this experience here (in Spanish) **bit.ly/3c2W0b2** and listen to the programs here (in Spanish): **bit.ly/2X8tikX**.

10. Exploring new models of sustainability

Profit has never been the motor running projects of community communication. But there is a great difference between making money and generating the necessary funds to keep a project viable and the working conditions decent. Dedication "to the cause" does have its limits.

The sustainability of community radios cannot be discussed exclusively from an economic perspective, rather it should be looked at from a holistic perspective, considering further aspects such as the social, the communicational and the financial-administrative dimensions. Each dimension enables the others, or allows them to exist. A community radio with the necessary funds but without a social project is as weak as a radio with a broad social basis but no means of generating funds.

Social sustainability will allow a radio to carry forward its original objective, which was what originally drove the community to establish its own communication media. This dimension speaks of the alliances and structures, the spaces that a radio occupies with regard to other actors in society, internal organization, and the processes of decision making for example. Ultimately, it defines "what we stand for" and "why we exist."

Communicational sustainability will facilitate the development of a coherent radio project. In addition to the social challenges, a radio will consider questions of sound aesthetics and how to deal with information. For this dimension of sustainability it is important to reflect on how the aims of the radio program can be transferred, which voices will be amplified, which language used and "how the radio will sound."

Finally, financial and administrative sustainability will allow to manage the necessary funds in ways that secure the radio's future. Money — by generating own resources or through subsidies, for example — but also people and teams, spaces, alliances, legal requirements and procedures.

Like with any sustainability plan, certain aspects will depend on the radio itself, many others, however, will depend on the

context. Digital tools and platforms forced traditional journalism to share the advertisement cake with ever more actors. Exclusively ads-based business models reached their limit and thinking about new sources of income became necessary: subscriptions, shared production, alliances with companies through promotional content, training programs, online shops, special magazines etc.

The post-pandemic environment is set to deepen the economic crisis. There are, without doubt, things to learn from the strategies adopted by the traditional media, but many better ideas are provided by the hundreds of radios that have used their creativity to find new ways of generating funds. The key lies in multiplying and diversifying the sources of income. Multiplying, to not depend on a single source of income that can leave you walking a tightrope when it dries up. Diversifying, to count on a series of strategies that in combination strengthen the capacity to generate resources.

Funding options beyond private advertisements can include auspices, sponsorships, official advertisements, development funds, public tenders, international cooperation funds, subsidies, sale of spaces, fund-raising campaigns, fairs, crowdfunding, listener clubs, sale of products and merchandise, sale of services, training workshops, cultural and communication services, renting out spaces, organizing events, teaching in institutions of formal education, having a bar at the radio, raffles, publishing production, subscriptions, sports championships etc. Money should not guide communication related decisions. But it should also not be a taboo.[49]

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[49] Binder, I., Fisher, P., y Godinez Galay, F. (2017). Como SEA: sostenibilidad econónimco-administrativa de las radios comunitarias de Argentina. Ediciones del Jinete Insomne, (in Spanish) https://bit.ly/EJI-comosea.

© CORAPE

Experiences of sustainability of the CORAPE network

Coordinadora de Medios Comunitarios, Populares y Educativos del Ecuador (CORAPE) is a network that aims to strengthen community radios in Ecuador. Concerned with ensuring the sustainability of the radios within its network, *CORAPE*, with the support of DW Akademie, began to advise radios on designing and implementing plans directed at strengthening sustainability in 2017.

The proposal consisted in developing four strategic areas of sustainability: advertisement, productive projects and ventures, alliances and structures, as well as production and program development. In combination these areas provide radios with an integral approach to sustainability, and thereby increase the chances of success.

The *"8 experiencias de sostenibilidad de la red CORAPE"* report (in Spanish) details the elements that were used to develop workshops and systematize the sustainability concepts of eight radios and which can be used as a source of inspiration by other media in the region. In this process participated *Radio Latacunga, Radio la Voz de Guamote, Radiofónicas ERPE, Radio Sonoonda Internacional, Emisora La Voz del Upano, Radio Sucumbíos Su Compañera Solidaria, Radio Iluman la Voz Intercultural, and Radio Alfaro.*

Read and download the publication (in Spanish) here: bit.ly/2Am5wcG.

Final remarks

The proposals in this manual cannot provide answers to all of the challenges faced by community radios and media in the post-pandemic environment and the corresponding strategies they therefore require. This text merely hopes to incentivize a broad and collective debate among people who share the conviction that communication can change and improve people's lives.

Numerous tools exist to ensure that this task does not remain merely an idea. One important such tool is the internet along with some of the platforms and software we have described in this text. However, these tools will not be of any use if they aren't used for communication projects that promote citizen participation and serve the communities where these radio initiatives were developed.

Therefore, the most important aspect of this publication may very well be to highlight the breadth of experiences that were collected and show how to harness digital technologies by putting a focus on people and their needs and on how to amplify their voices. Knowing these tools, identifying their most innovative features and transferring lessons learned to the reality of each radio can smoothen the path to put community-led, transformative communication into practice.

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